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Effects of granivores and herbivores on pine savanna groundcover vegetation

Ellen Ruth Leichty
Louisiana State University and Agricultural and Mechanical College, eleich1@lsu.edu

EFFECTS OF GRANIVORES AND HERBIVORES ON PINE SAVANNA GROUNDCOVER VEGETATION

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Ellen Ruth Leichty
B.A., Goshen College, 1996
M.S., North Dakota State University, 2002
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ABSTRACT

Pine savannas are an endangered ecosystem and cover <2% of their former range. Although often characterized by the presence of a single tree, *P. palustris*, the groundcover vegetation is extremely species rich. Thus, the groundcover vegetation is the focus of conservation efforts in pine savannas. This dissertation describes how fire, patches of shrubs, winter avian granivores, winter mammalian herbivores, and an introduced climbing fern (*Lygodium japonicum*) affect pine savanna groundcover. The fieldwork for this dissertation was done at Camp Whispering Pines, a pine savanna that has been undergoing restoration since 1990. Biennial, prescribed fires at the beginning of the growing season are a part of the habitat restoration. Although stem production of all groups of plants except bunchgrasses was stimulated by fire, annuals were found to respond most strongly to fire. Thus frequent fires appear to increase the presence of annuals in the groundcover of pine savannas. Pine savanna vegetation is interspersed with patches of shrubs. Along the margins of shrub patches there were more annual stems and fewer bunchgrass stems. Thus, shrubs appear to increase the heterogeneity of the groundcover. Pine savannas have a diverse group of avian granivores including some rare and endemic species. Avian granivores are probably selective in the seeds that they remove. Thus, they probably change the composition of the pool of seeds available to germinate. By removal of common species or large-seeded competitive dominants, avian granivores were predicted to increase the species richness of pine savanna groundcover vegetation. The White-tailed Deer (*Odocoileus virginianus*) and the Eastern Cottontail (*Sylvilagus virginianus*) are mammalian herbivores present at the study site. Mammalian herbivores often affect plant communities by removal of competitive dominants or selective removal of woody species. Mammalian herbivory was found to decrease the numbers of bunchgrasses, but did not affect other components of the

plant community. In addition, bunchgrasses showed a large increase through the five seasons of data. There were, however, no subsequent changes as a result of this increase in stem numbers. Thus, bunchgrasses do not appear to competitively exclude other members of the species-rich groundcover community. *Lygodium japonicum* potentially threatens pine savanna groundcover. I evaluated how shrubs and fire affect its ability to invade pine savannas. *Lygodium japonicum* was found to occur in many more of the experimental plots along the margins of shrubs, and fire did not decrease its biomass. Presence of shrubs appears to facilitate invasion of pine savannas by *L. japonicum*, and fire is not an effective method of control.

CHAPTER 1

INTRODUCTION

OBJECTIVES

Pine savannas are endangered; their current extent is <2%of their former range (Earley 2004). Pine savannas were initially disturbed by logging in the late nineteenth and early twentieth centuries, but more recently fire suppression has endangered this ecosystem (Platt 1999). Pine savannas have a species-rich groundcover with high levels of endemism. Thus, the groundcover vegetation is a focus of restoration efforts. This dissertations aims to explore how patches of shrubs and fire affect the species composition of groundcover. In addition, the effects on the groundcover vegetation of avian granivores, mammalian herbivores, and an invasive species (*L. japonicum*) are evaluated. By determining the effects that these five factors have on the pine savanna groundcover this dissertation will (1) identify threats to pine savanna groundcover and (2) discover possible mechanisms that maintain the high diversity of pine savannas.

DISSERTATION CHAPTERS

Chapter 2 evaluates how fire and presence of shrubs affects pine savanna groundcover, and how these changes may relate to use of pine savannas by avian granivores. Longleaf pine savannas are characterized by a 2-layered physiognomy with a canopy of uneven-age widely spaced trees and an herbaceous ground-layer(Platt 1988, Gilliam et al. 2006). The groundcover vegetation is interspersed with patches of shrubs and contains a wide variety of plant life forms including grasses and forbs and annuals and perennials. Historically pine savannas were characterized by frequent, growing season, lightning-ignited fires.

Two rare sparrows are dependent on pine savannas. Henslow's Sparrow (*Ammodramus henslowii*) breeds in Midwestern prairies and uses pine savannas as winter habitat (Herkert et al. 2002). Henslow's Sparrow has undergone steep annual population

declines of -8.1% (1966-2007 average; Sauer et al. 2008). Bachman's Sparrow (*Peucaea aestivalis*) is the only sparrow endemic to the United States, and was historically likely confined to pine savannas (Jackson 1988). It now also occurs in clear cuts, which have the groundcover of pine savannas (Dunning 2006). Bachman's (Engstrom et al. 1984, Gobris 1992) and Henslow's Sparrows (Bechtoldt and Stouffer 2005) both occur only at sites that have recently (5 years or less) burned.

Although both Bachman's and Henslow's Sparrows consume insects in summer; in winter they are granivorous. Granivores sometimes have large effects on plant communities through their consumption of seeds. For example a desert-shrub community transitioned to arid grassland with exclusion of rodent granivores (Brown and Heske 1990). Although avian granivory has been found to have effects on tallgrass prairie communities (Howe and Brown 1999), it has not been studied in pine savannas. Some evidence suggests that Bachman's and Henslow's Sparrows may specialize on *Panicum* and *Dichanthelium* grasses (Allaire and Fisher 1975, DiMiceli et al. 2007). Thus determining whether avian granivores remove significant numbers of *Panicum* and *Dichanthelium* species, and whether stem numbers of these grasses fluctuate with fire, may facilitate management of pine savannas.

Chapter 3 explores the effects that winter herbivores have on pine savanna groundcover. Winter herbivores at the site include the White-tailed Deer (*Odocoileus virginianus*) and the Eastern Cottontail (*Sylvilagus floridanus*). Whether they have a high enough population density to have large effects on the vegetation of pine savannas has not been determined. Both deer and rabbits are game species with hunting regulations as a potential tool in management of their populations. Chapter 3 also considers changes in the groundcover vegetation that occurred over the five years of the study. Variables of the plant

community that were evaluated include stem numbers, species evenness, and species richness.

Chapter 4 describes aspects of the invasion of the groundcover by *Lygodium japonicum*, a non-native invasive climbing fern that has been designated a threat to pine savannas (Stocker 2005, Munger and Hoop 2008). Basic aspects of how it invades pine savannas have not been documented. This dissertation explores whether shrub patches or open pine savanna are more invaded by *L. japonicum,* the effects that fire and mechanical removal have on *L. japonicum*, and whether the number of sites at CWP with *L. japonicum* present continues to increase. Chapter 5 summarizes the important findings and suggests future research.

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CHAPTER 2

EFFECTS OF GRANIVORY ON PINE SAVANNA GROUNDCOVER VEGETATION

INTRODUCTION

Granivores potentially affect plant communities by removal of seeds. Because large-seeded plants are often competitively superior to small-seeded plants (Baker 1972, Turnbull et al. 1999, Leishman and Murray 2001), selective removal of large seeds by granivores might increase plant diversity. For example, selective granivory on one dominant large-seeded species, *Silphium integrifolium*, by rodents during the winter resulted in release of smaller-seeded species and increased diversity in a synthetic prairie forb community in Wisconsin (Howe and Brown 2000, 2001). Granivory on large-seeded species also sometimes leads to cascading effects. Exclusion of rodents in a desert community resulted in a decrease in harvester ants, because large-seeded plants, seeds of which were selectively eaten by rodents, suppressed small-seeded species used by ants (Davidson et al. 1984). These studies suggest rodent granivory might influence species composition of plant communities.

There have been fewer studies of the effects of avian granivores on plant communities. Howe and Brown (1999) showed that avian granivory decreased numbers and biomass of grasses, but did not change diversity of a synthetic plant community. Because they established the tall-grass prairie on an agricultural field in May and sampled biomass the subsequent October, granivory in their experimental system might not resemble granivory in native prairies. In long-established prairies many grasses are perennials, and most of their stems originate from underground storage structures rather than seeds. Hence, removal of seeds by granivores may be unlikely to affect abundance of perennials, but potentially could have large effects on annuals.

Effects of granivory might be expected to increase as the size of the species pool of plants increases. Assuming space is limited, increases in numbers of species should result in

reductions in abundances of multiple species. Therefore, the same level of granivory might result in proportionately larger effects as species richness increases. This is a lottery effect in which high species richness is maintained because there are a large number of potential different colonists to fill in space in the community (Sale 1977, 1978, Warner and Chesson 1985, Turnbull et al. 2000). Thus, in prairies, where a few clonal grasses dominate, removal of seeds of one grass species by granivores may affect that species, but have small effects on diversity because the species pool is small. Recruitment of species from dormant seeds in a diverse seed bank or immigrating from elsewhere could result in granivores having larger effects in high diversity plant communities, even if they do not remove larger numbers of seeds. Specialized granivores also may have more effect on the plant community than generalist granivores. Removal of seeds of a few selected species might greatly decrease the chances that those species would colonize opened space. As a result, the likelihood of colonization of any open space would be increased for other species, thereby increasing local biodiversity.

I propose that avian granivory might have large effects in high diversity groundcover plant communities. Pine savannas in the southeastern coastal plain region of North America often are characterized by high diversity of their groundcover plant communities. This diversity, with as many as 20 –40 plant species per m^2 and 100 – 130 species per 100 m^2 (Walker and Peet 1983, Platt 1999, Schmitz et al. 2002, Platt et al. 2006), is 2-3 times richer than in prairies (Myers and Harms 2009). Such diversity may result, in part, from dominant clonal perennial grasses, often the same species as in prairies, occupying less space in pine savannas than prairies. Frequent fires and nutrient-poor soils slow both post-fire recovery and clonal spread of perennial grasses (Platt 1999, Platt et al. 2006). Therefore, in the summer and fall following such fires, local assemblages may be open to invasion. Frequent

lightning-season fires result in synchronized flowering and seed production among and within many pine savanna groundcover plant species, both dominant and non-dominant species (Platt et al. 1988, Streng et al. 2003). Such production of abundant seed following fire should increase likelihoods of invasion of local sites by both dominant and non-dominant grasses. Effects of granivory on dominant grass species after fire might increase the relative likelihood that non-graminoid species would colonize local sites, enhancing diversity of the groundcover plant community. Thus pine savannas offer an opportunity to expand study of the effects of granivory on plant diversity.

Birds, because of their high mobility, may take advantage of increased seed production following fires. Studies often (Thompson et al. 1991, Blendinger and Ojeda 2001, Moorcroft et al. 2002), but not always (Pulliam and Dunning 1987) have found larger numbers of avian granivores in sites with increased seed abundance. Many of the winter avian granivores that occur in pine savannas have movement and territory establishment patterns consistent with tracking a transitory resource. There are gregarious migratory species that do not have winter territories and occur in nomadic flocks. Other species have transitory attachment to winter territories that may be a result of large fluctuations in seed abundance related to where fires have stimulated flowering.

For example, Henslow's Sparrow (*Ammodramus henslowii*), which in winter is largely restricted to pine savannas, is sensitive to how recently the site has burned. Henslow's Sparrows were most common one year post-fire and no longer occupied pine savannas three years post-fire (Bechtolt and Stouffer 1997). Henslow's Sparrows established winter territories and showed high site fidelity within the season (Plentovich et al. 1998, Johnson et al. 2009), but did not return to the same site in subsequent years (Plentovich et al. 1998).

I studied granivory by overwintering birds in a high diversity pine savanna. Some evidence suggests that seeds of *Panicum* and *Dichanthelium* grasses, which produce abundant seeds 1-4mm in length during the fall, are important in the diet of overwintering granivorous birds. Bachman's Sparrows may specialize on seeds of *Panicum* and *Dichanthelium* grasses (Allaire and Fisher 1975). Seed selection experiments on Henslow's Sparrows found that *Dichanthelium* grasses were among their preferred species (DiMiceli et al 2007). In addition, their habitat occupancy is often associated with *Panicum verrucosum* (Plentovich et al. 1999). Because these species are stimulated to flower by fire and are often abundant in pine savannas, they should produce abundant seeds. Thus, I focused on granivory of *Panicum* and *Dichanthelium* grasses in this study.

I addressed three related questions. First, does the abundance of *Panicum* and *Dichanthelium* grasses in pine savanna groundcover change when overwintering avian granivores have/do not have access to seeds produced by those plants? I addressed this question using two local habitats and studies done in fire and non-fire years. I anticipated that effects of overwintering avian granivores on the abundance of *Panicum* and *Dichanthelium* grasses should be greater in open pine savanna than in savanna-shrub edges. In addition, any effects should be greater in years with fires than in years between fires because birds have been recorded as favoring recently burned areas. I addressed these questions for all *Panicum* and *Dichanthelium* grasses, as well as for annual species (*Panicum verrucosum*) and perennial species of both genera.

Second, does granivory by overwintering birds influence short-term changes in species richness of other species in the pine savanna groundcover? Any changes in *Panicum* and *Dichanthelium* grasses as a result of granivory might have consequences for the rest of the groundcover plant community. I anticipated that overwintering birds, by removing seeds

of *Panicum* and *Dichanthelium* grasses, might open space that can be colonized by other species, increasing species richness. I also thought that such increases in species richness for other species might be more likely in open pine savanna compared to savanna-shrub edges and that such increases might be more likely in years with fire than in years between fires. I addressed these questions for all species, as well as for annual and perennial species. excluded *Panicum* and *Dichanthelium* and dominant bunchgrasses from these analyses.

Third, do *Panicum* and *Dichanthelium* grasses directly influence the species richness of the groundcover in a pine savanna? Effects of removal of avian granivores may take time to become apparent. Perennial grasses might persist for some time on a site even if their seeds are being eaten, and annual grasses might have large seed banks. I simulated longer-term effects of avian granivory on pine savanna groundcover by accelerating potential declines resulting from granivory. I removed all *Panicum* and *Dichanthelium* grasses twice annually to determine if removal of these grasses results in changes in the plant community and to explore whether these changes are similar or different from changes observed when avian granivores are excluded. Further, removal of *Panicum* and *Dichanthelium* grasses addresses the role of interspecific competition in structuring the pine savanna groundcover. Other studies of pine savannas have suggested that competition from bunchgrasses has little effect on the diversity of pine savannas (Roth et al. 2008), whereas competition from shrubs negatively affects diversity (Myers and Harms 2009). The competitive role of *Panicum* and *Dichanthelium* grasses, which can comprise as much as 20% of the stems in pine savannas (E. Leichty, personal observations), is not known.

I studied avian granivory using a five-year field experiment in a high biodiversity pine savanna. I studied two different habitats in the pine savanna, open pine savanna and shrub-savanna edge. These habitats were located in different areas burned in alternate years by

biennial spring fires. I designed exclosure cages that were flush with the ground so that they excluded birds, but not mammals. To determine changes in vegetation plots inside and outside exclosures, I counted all stems in the plots at the end of the summer growing season. Because I was interested in winter avian granivory, I removed the cages before fires in the late spring to minimize any other effects they might have on the vegetation. Cages were then replaced in the fall after censuses of plants were conducted. I used results to test hypotheses about the effects of avian granivory on the groundcover vegetation. In addition to testing hypotheses about avian granivory, I also identified and described differences in the pine savanna groundcover vegetation between the two habitats and between fire and non-fire years. I suggest how these habitat and fire effects on the vegetation may relate to (1) the high species richness of pine savannas and (2) how granivorous birds use pine savannas.

METHODS

Study Site. The study site, Girl Scout Camp Whispering Pines (hereafter, CWP) is located at 30°41' N; -90°29' W in Tangipahoa Parish in eastern Louisiana. Situated within the loess plains at the western edge of the Gulf Coastal Plain, CWP soils are fine sands capped by loess (McDaniel 1990, Platt et al 2006). Uplands at the eastern edge of CWP about 25m above mean sea level are dissected by ravines that drain into the Tangipahoa River, located at the western edge of CWP.

CWP contains a diversity of habitats. Most of the site contains upland pine savanna with a characteristic two-layered physiognomy (Gilliam et al. 2006). The overstory canopy consists primarily of *Pinus palustris.* The high diversity groundcover is dominated by bunchgrasses (*Schizachyrium scoparium*, *S. tenerum, Andropogon* sp.), but also contains low-stature shrubs (e.g., *Ilex glabra, Rhus coppalinum)* and numerous forbs (Platt et al. 2006, Keddy et al. 2006, Myers and Harms 2009). Patches of shrubs such as *Ilex vomitoria, Morella*

cerifera, and more recently *Ligustrum sinense* occur along a gradual transition from open pine savanna to shallow ravines containing mixtures of pines (*Pinus palustris, P. echinata, P. taeda*) and hardwood trees (*Quercus stellata, Q. nigra*, *Carya texana*). These ravine woodlands merge with lower slope ravine forest along creeks draining into the Tangipahoa River (Noel et al. 1998, Passmore 2009).

The site has had a varied land-use history (Platt et al. 2006). After the American Civil War, open range grazing and habitat fragmentation from roads occurred across this region. The site was logged in the 1920-1930's, and selective logging occurred shortly after the site was purchased as a Girl Scout Camp in the late 1960's. Fire suppression also occurred over the next couple decades. Despite such anthropogenic disturbance, the vegetation has remained relatively intact over large areas of the site.

Ecological restoration and management of CWP habitats was initiated in 1990. Alternate year prescribed fires during the lightning season (April-May) have been conducted over the subsequent 20-year period. As a result, abundances of shrubs in the upland pine savanna have been reduced, and herbaceous groundcover plants have increased in abundance (Platt et al. 2006, Thaxton and Platt 2006). The fires, which often burn from uplands into ravine and lower-slope forests, have facilitated open woodlands along the slopes (Passmore 2009). Patches of shrubs now occur intermixed with large areas of predominantly herbaceous groundcover along the gradual transition from pine savanna to upper edges of ravines. I conducted this study in this pine savanna - slope woodland transition habitat at CWP.

Prescribed fires have been conducted on a biennial basis at CWP since 1990. A general description of the use of fires in restoration and management of habitats at CWP is available in Platt et al. (2006). During the current study, fires were ignited every other year in

April – May after no rain had occurred for at least one week. The ignition points were along trails defining borders of areas to be burned. As a result fires burned plots primarily as head/flank fires. Fires typically burned across upland pine savannas and spread downslope into ravines. These fires typically consumed almost all above-ground biomass in plots in the open-pine savanna sites. In contrast, fires sometimes burned patchily through some of the plots on the shrub-savanna edge.

Field Layout and Experimental Plots. I located experimental plots for the study at twenty different sites. These sites were divided according to both habitat and fire treatment. Ten sites were in pine savanna that contained herbaceous groundcover and few large shrubs (hereafter, open pine savanna). Ten sites containing some shrubs and herbaceous groundcover were in the transition from open pine savanna to patches of shrubs (hereafter, shrub-savanna edge). To avoid confounding seasonal effects (e.g., variation in precipitation, freezing temperatures) with fire effects, the plots were located in separate burn units at CWP so that half were burned each year. The numbers of plots within the burn units were balanced equally between the two habitats so that five sites in open pine savanna and five sites in shrub-savanna edge were burned each year. Each site was burned twice during the study.

Three 1 x 1 m plots were randomly located at each site. Exclosures were placed over two plots during the dormant season, and the third plot not covered by an exclosure served as a control. A second control was also installed at 12 of the 20 sites (3 in each burn year by site condition). This second control plot was identical in structure to the first control, but was distant from the main set of plots. This “far control” was to evaluate any effects that field layout of plots might have on bird behavior (such as birds avoiding the first control plot because it was close to the exclosure cages). Rebar posts marked each corner of the 1 x 1

m plots. Exclosures were installed in late October, checked regularly during the dormant season, and then removed in early April; these five months spanned the period when migratory avian granivores were expected to be present at CWP. The year-round resident granivores are insectivorous during the growing season.

The exclosures consisted of a frame of PVC pipe, sides of ½-inch hardware cloth, and a top of 1-inch crop netting. They were approximately 1 m high, and measured slightly more than 1 m^2 to minimize edge effects on the plots caused by their installation in the fall and removal the following spring. Metal fasteners attached the hardware cloth to the PVC pipe. Tops were fastened to the hardware cloth using masonry string. Four fence posts were placed slightly beyond the four corners of the plot. When cages were installed, the PVC pipe slid over these fence posts, holding the cage firmly in place.

Exclusion of avian granivores was accomplished by placing the exclosure cage walls flush with the ground. Plots were not buried in the soil; exclosures designed to exclude small mammals such as voles and mice typically are buried ½ m (Brown and Davidson 1977, Davidson et al. 1984,1985, Thompson et al. 1991, Heske et al. 1994). Thus, such mammals were not excluded from exclosures.

The two exclosure treatments at each site differed in the treatment of plants. In one of the exclosure plots vegetation was not altered. In the other exclosure plot, all *Panicum* and *Dichanthelium* grasses were removed twice a year by extracting both culms and rhizomes. These plants were removed before prescribed fires in the spring (April-May) and during the main late summer census (August –September). Plants were pulled rather than clipped with the result that the roots were removed. Most of the *Panicum* and *Dichanthelium* grasses were removed during the seedling stage, which minimized soil disturbance. Stems were counted, collected and then oven-dried and weighed to the nearest 0.01 gram. This treatment was

designed to simulate long-term effects of removal of seeds of *Panicum* and *Dichanthelium* grasses by avian granivores on the pine savanna. Removal of *Panicum* and *Dichanthelium* perennial grasses destroyed most of the underground storage structures that these plants would have used to regenerate following fire. When these perennial species were removed twice yearly, most of the new stems were derived from seeds, rather than survival of a ramet. By comparing perennial grasses in removal and main summer censuses, it was possible to examine effects of fire stimulation when most regeneration occurred from seeds versus established ramets.

Plant Census. All plants in each plot were censused annually in late summer-early fall. Identification of plants was based on specimens collected at CWP and archived in the Louisiana State University herbarium (<http://www.herbarium.lsu.edu/>) and the USDA Plants Database (http://plants.usda.gov/sitemap.html). A species list of all plants sampled is presented in Appendix A. Abundances were estimated as numbers of stems present during a census. For many of the annual plants one stem represented one genetic individual; for other plants multiple stems comprised genetic individuals.

The plots were sampled a total of five years beginning in 2004. To avoid confounding seasonal effects with treatment effects, the order in which the plots were sampled was random with regard to site, fire year, and treatment. The sequence was established the first year and followed in subsequent years. Using the same sequence each year reduced variation caused by the seasonal phenology of plant growth and flowering.

Data used in analyses were separated into three categories:

1) I separated *Panicum* and *Dichanthelium* grasses from all other components. This was important because (1) *Panicum* and *Dichanthelium* grasses were removed in some of the treatments, and (2) *Panicum* and *Dichanthelium* grasses were the focus of the avian

granivory study. Only one of the *Panicum* and *Dichanthelium* grasses, *Panicum verrucosum,* was an annual. Because *P. verrucosum* often was abundant, I often considered it separately in analyses.

2) I divided all other plants into annuals and perennials. I hypothesized that annuals might show a greater increase than perennials when birds are excluded, because seeds of annuals might be more likely to be present and germinate, especially when *Panicum* and *Dichanthelium* grasses were removed, opening space. About 20% of the pine savanna groundcover species are annuals (Platt et al. 2006, unpublished data).
3) Warm season bunchgrasses were sometimes excluded from the rest of the perennial species. These grasses commonly dominate pine savanna groundcover plant communities (e.g., Pinder 1975, Streng et al. 1993, Platt et al. 2006, Myers and Harms 2009). They were excluded from some analyses because they are long lived perennials that mostly regenerate from underground storage structures. Hence, removal of seeds is not likely to have a large effect on their stem numbers.

Bird Surveys. Birds were surveyed during the winter months (November – March). Point count methods were used with the 20 sites used as the foci of the point count circles. All birds seen and heard at the site for five minutes within approximately 40 meters were counted. The censuses were conducted in the morning hours. A total of 12 different censuses were done, 5 in 2005-2006, 4 in 2006-2007, and 3 in 2007-2008. Appendix B lists the bird species that were recorded in the censuses.

Statistical Analysis. Data were analyzed using SAS software, Version 9.3.1, © 2002-2004. SAS Institute Inc. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc., Cary, NC, USA. ANOVA was conducted using PROC Mixed and data were tested for normality with Shapiro-Wilk tests. All

factors and interactions were tested. Log and square root transformation improved normality, but analysis was ultimately performed on untransformed variables because they did not strongly deviate from normality. The models were run on two different combinations of the factors. The far control treatment was not installed until the second year, so the model was run without year 1 to look at the effects of the far control treatment, and without the far control treatment to look at the effects of year 1.

Non-metric Multiple Dimensional Scaling (MDS) and ANOSIM in Primer v6.0 were used for multivariate analysis (Clarke 1993, Clarke and Warwick 2001). Bray-Curtis distances were used to generate the resemblance matrix. MDS and ANOSIM were run on either untransformed, square root transformed, or presence-absence transformed data. Transforming data weights rare and common species differently. With untransformed data the most common species are weighted the heaviest and drive results, whereas with presence absence data, the rare species are weighted equally with common species. Square-root transformation balances the contributions of rare and common species.

Multivariate analysis was used for both the plant community data and the bird census data. To evaluate the effects of the bird exclusion treatment, both the full data set and subsets were used. Smaller subsets were used because plot site strongly influenced the MDS ordination plots. By including only one sample from each site, it was possible to have the plots grouped by factors other than site. Ordination plots for the bird community were done with all species, granivorous species and shrub species. Shrub versus non-shrub habitat was the comparison of interest.

RESULTS

Differences in Plant and Winter Bird Communities. Species composition differed between the open pine savanna and the shrub-savanna edge. Non-metric multi-dimensional

scaling resulted in a distinct clustering of the two habitats when the entire plant community was considered (Figure 1A). Bray-Curtis similarities were used to calculate the differences between points and untransformed data were used. The differences in the two habitats were not explained simply by the presence of more woody species in the shrub-savanna edge. When woody species were removed, differences persisted (Figure 1B).

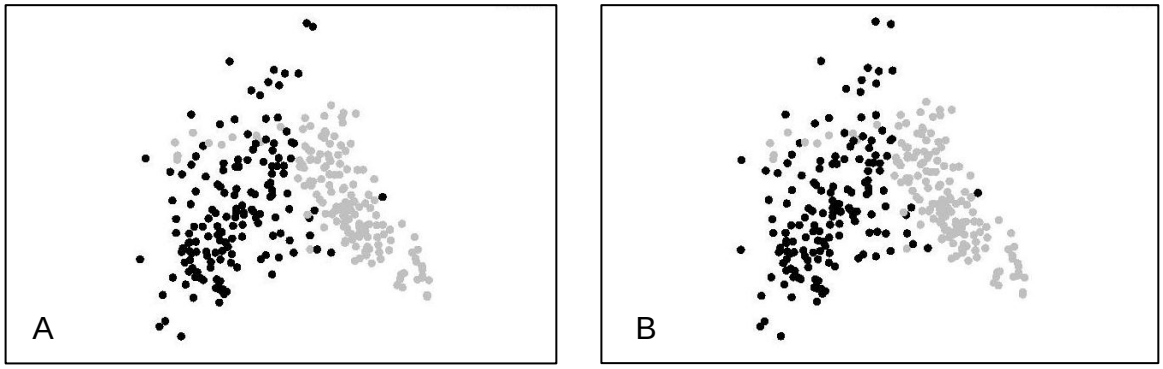

Figure 1. MDS ordination of the species composition of the shrub-savanna edge (dark circles) and open pine savanna (light circles) at Camp Whispering Pines. The entire groundcover (Figure 1A) (stress = .2) and only herbaceous species (Figure 1B) (stress = .2) were considered separately. *Panicum* and *Dichanthelium* grasses were included in analyses. Data were untransformed and Bray-Curtis similarity was used.

The winter bird community did not show differences between the shrub-savanna edge and the open pine savanna (Figure 2). Results were similar when the entire avian community (Figure 2A) and when only granivorous species (Figure 2B) were included.

Stem Production. Stem production was stimulated by fire. Numbers of stems of *Panicum* and *Dichanthelium* grasses and of all other species in the groundcover combined were greater in years that plots were burned than in years when plots were not burned (Figure 3). Differences were significant for *Panicum* and *Dichanthelium* grasses ($F_{1,170} = 80.4$; $P < 0.001$) and for the rest of the plant community ($F_{1,266} = 18.0$; $P < 0.001$).

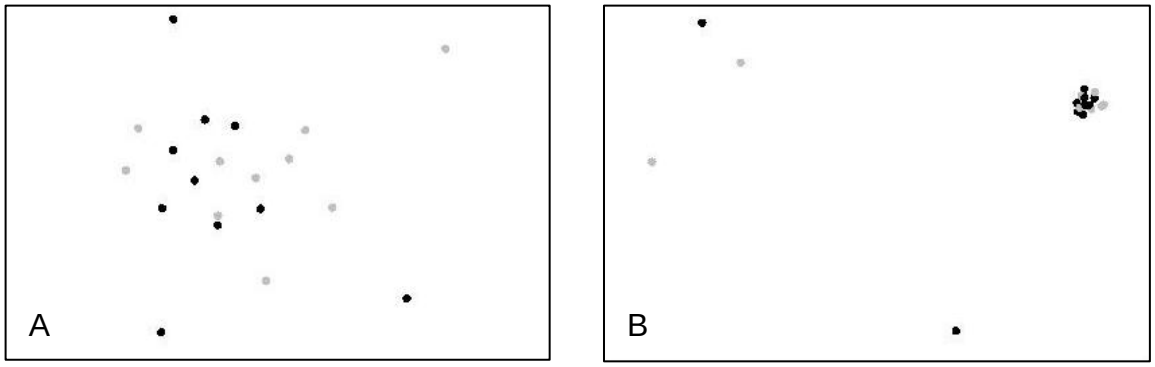

Figure 2. MDS ordination plot of the avian community in the shrub-savanna edge (dark circles) and open pine savanna (light circles). The entire avian community (A) (stress = .18) and only granivorous species (B) (stress = .01) are considered separately. Data were untransformed and Bray-Curtis similarity was used.

Habitat had an effect on stem numbers of *Panicum* and *Dichanthelium* grasses, but not on the remaining species in the plant community (Figure 3). There were more *Panicum* and *Dichanthelium* grasses along the shrub-savanna edge than in the open pine savanna ($F_{1,170} = 6.3$; $P = 0.013$). Differences in stem numbers between the two habitats were not significant for the remaining plant community ($F_{1,266} = 0.5$; $P = 0.480$).

The increases in stem numbers following fire were greater along the shrub-savanna edge than in the open pine savanna habitat (Figure 3). As a result, the fire by habitat interaction was significant, both for *Panicum* and *Dichanthelium* grasses ($F_{1,170} = 44.3$; $P < 0.001$) and for all other species combined ($F_{1,266} = 6.4$; $P = 0.012$). In non-fire years the shrub-savanna edge and the open pine savanna had similar numbers of stems; in fire years the shrub-savanna edge had more stems than the open pine savanna. Although the fire by habitat interactions were significant for both the *Panicum* and *Dichanthelium* grasses and the non-*Panicum* and *Dichanthelium* species, fire appeared to stimulate the *Panicum* and *Dichanthelium* grasses more. For example, along the shrub-savanna edge fire increased

stem numbers of non-*Panicum* and *Dichanthelium* species by 71%, and *Panicum* and *Dichanthelium* grasses by 119%.

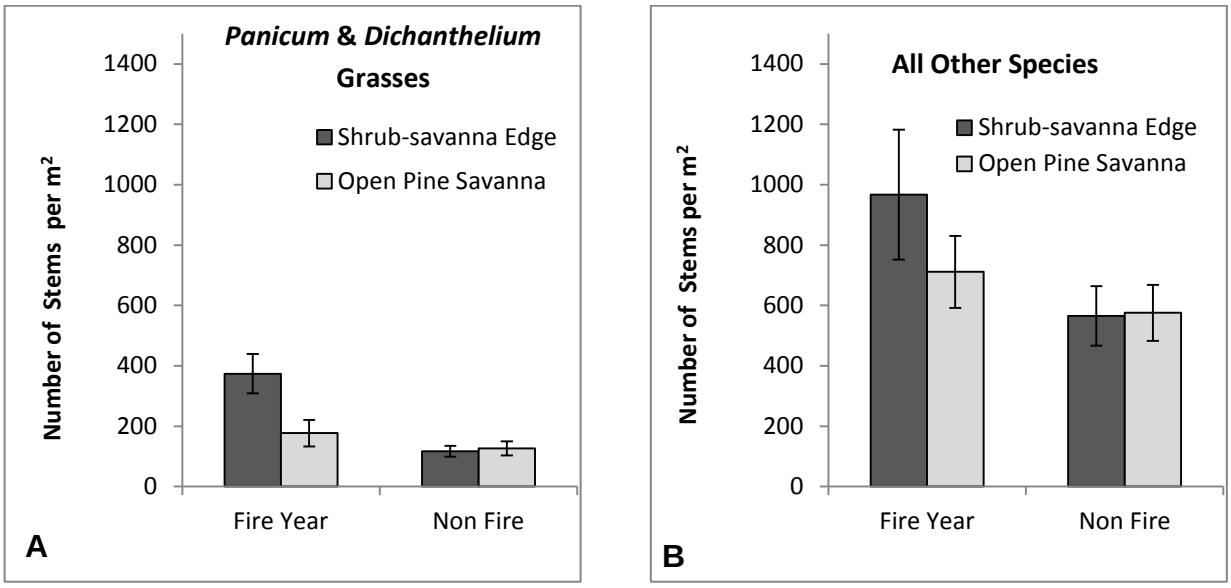

Figure 3. Mean numbers of stems of *Panicum* and *Dichanthelium* grasses (A) and of all other species (B) in the shrub-savanna edge and open pine savanna in years with fires and years without fires. Vertical bars are 95% confidence intervals.

Stem Production of Annuals and Perennials. Stem production of annual plant species was stimulated by fire. This occurred for both *Panicum verrucosum*, the only annual *Panicum* and *Dichanthelium* grass that occurred in the plots, and for the rest of the annuals (Figure 4). Although there were approximately 20 species of annuals, *Phyllanthus caroliniensis* was the most common annual and constituted of 92% of the annual stems. Both *Panicum verrucosum* ($F_{1,170} = 78.8$; $P < 0.001$) and the remaining annual species ($F_{1,266} = 13.0$; $P < 0.001$) had significantly higher stem numbers in fire years.

Habitat also had a large effect on stem numbers of annuals. Annuals were much more abundant along the shrub-savanna edge (Figures 3A,B). Both *Panicum verrucosum* ($F_{1,170} =$

26.8; P <0.001) and the other annuals ($F_{1,266}$ = 15.0; P < 0.001) had significantly more stems in the shrub-savanna edge than in the open pine savanna. Combining *Panicum verrucosum* with the other annuals, the shrub-savanna edge averaged 321 stems/m^2, whereas the open pine savanna averaged 13.6 stems/m^2. Thus, the shrub-savanna edge had approximately 23.6 times as many annual stems as the open pine savanna.

Stem production of annuals showed a fire by habitat interaction. The fire by habitat interaction was significant for both *Panicum verrucosum* ($F_{1,170}$ = 75.0; P <0.001) and the other annuals ($F_{1,266}$ = 12.0; P < 0.001). In the open pine *Panicum verrucosum* stem numbers averaged 16.9 stems/m^2 in non-fire years and 17.4 stems/m^2 in fire years, which was an increase of 3%. In the shrub-savanna edge *Panicum verrucosum* stems increased from 38.8/m^2 to 281.3/m^2, which was an increase of 625% in fire years. Thus, in the shrub-savanna edge, fire stimulated *P. verrucosum*, whereas it did not increase the stem numbers in the open areas of the pine savanna. The non-*Panicum* and *Dichanthelium* annuals showed increases in both habitats in fire years. In the open pine savanna mean number of stems increased from 5.8 stems/m^2 to 14.3 stems/m^2; in the shrub savanna edge, mean number of stems increased from 288 stems/m^2 to 676 stems/m^2. These increases in fire years were 133% and 147%. Because there were few annual stems in the open pine savanna, the significant fire by habitat interactions may be a result of stochastic variability in stem numbers rather than biologically important. Nevertheless, for both *P. verrucosum* and the other species, it appears that fire stimulates them more strongly in the shrub-savanna edge habitat.

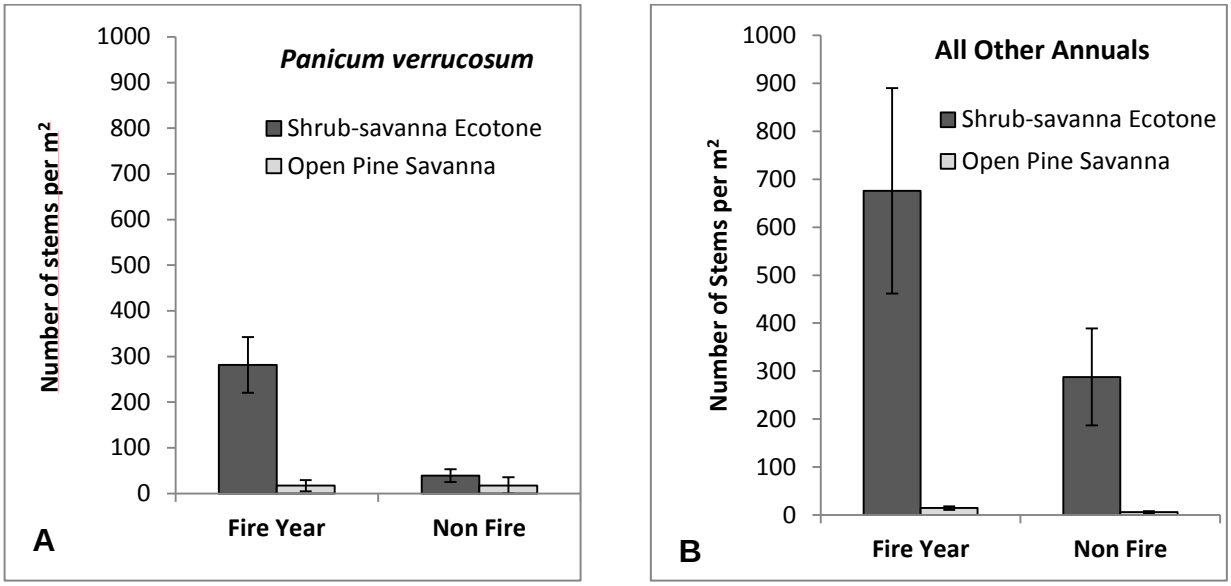

Figure 4. The effects of fire and habitat on the stem numbers of annual species. *Panicum verrucosum*, the only annual of the *Panicum* and *Dichanthelium* grasses that occurred in the study plots, is considered separately from the non- *Panicum* and *Dichanthelium* species. Vertical bars are 95% confidence intervals.

Like annuals, perennials were stimulated by fire (Figure 5). This occurred for both *Panicum* and *Dichanthelium* grasses, and for other perennials. Stem numbers of perennial *Panicum* and *Dichanthelium* grasses ($F_{1,170} = 6.5$; $P = .012$) and other perennials ($F_{1,266} = 4.0$; $P = .048$) increased significantly in fire years.

Habitat affected the stem numbers of perennials. Unlike annuals, which had more stems in the shrub-savanna edge, perennials had more stems in the open pine savanna (Figure 5). Habitat differences were not significant for the perennial *Panicum* and *Dichanthelium* grasses ($F_{1,170} = 1.9$; $P = 0.166$). Other perennials, however, had significantly more stems in the open pine savanna ($F_{1,266} = 9.0$; $P = 0.003$).

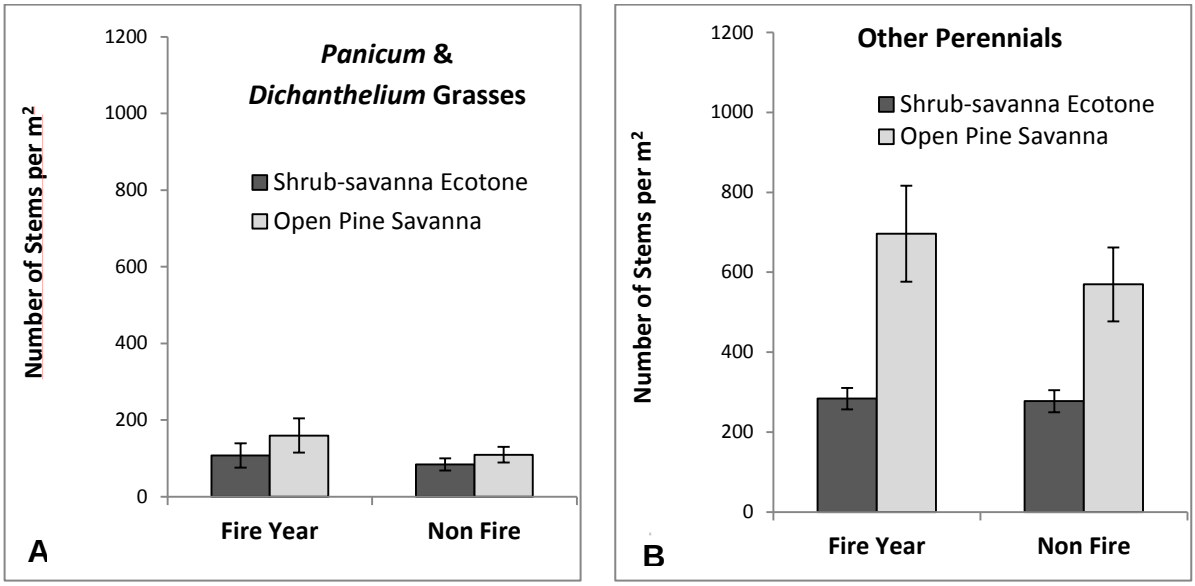

Figure 5. Effects of fire and habitat on stem numbers of perennials. Perennial *Panicum* and *Dichanthelium* grasses (A) were considered separately from the remaining perennial species (B). Vertical bars are 95% confidence intervals.

Effects of Time of Removal and Type of Census. *Panicum verrucosum* was stimulated by fire in both the spring and summer removal censuses (Figures 6A, 7A). Significantly more stems were removed in fire years for both the spring ($F_{1,48}$ = 8.5; P = 0.005) and summer ($F_{1,48}$ = 6.3; P = 0.016) removal times. For *P. verrucosum,* the data are inconsistent as to whether the removal censuses versus the main summer census showed a greater stimulating effect of fire (Figure 8). For the main summer census, non-fire years averaged 28.1 stems/m^2 and fire years averaged 149.1 stems/m^2, which was an increase of 430% in fire years. For the spring removal census, non-fire years averaged 11.7 stems/m^2 and fire years averaged 49.2 stems/m^2, which was an increase of 323%. For the summer removal census, non-fire years averaged 2.2 stems/m^2 and fire years averaged 62.2 stems/m^2, which was an increase of 2700%. Thus, the size of increase from fire for the spring removal and main summer census were similar; whereas the summer removal census

showed a much larger stimulating effect of fire. The extremely high stem numbers for the summer removal census, however, were partly driven by a single data point. The removal plot at site 20 had 1,071 *P. verrucosum* stems in 2007; the next highest number of *P. verrucosum* stems for any other summer removal census plot was 222. Without this data point, the average number of *P. verrucosum* stems in fire years in the summer removal census was 37.1 stems/m^2 instead of 62.2 stems/m^2. Nevertheless, the summer removal census still showed much larger stimulating effects from fire than the spring removal census or the main summer census.

The perennial *Panicum* and *Dichanthelium* grasses were stimulated by fire in both the spring and summer removal censuses (Figures 6B & 7B). There were significantly more stems removed in fire years in both spring ($F_{1,48} = 34.3$ $P < 0.001$) and summer ($F_{1,48} = 19.1$ $P < 0.001$). The stimulating effect of fire was greater in the spring and summer removal censuses than in the main summer census (Figure 8). For the main summer census, non-fire years averaged 96.6 stems/m^2 and fire years averaged 133.7 stems/m^2, which was an increase of 38% in fire years. For the spring removal census, non-fire years averaged 11.5 stems/m^2 and fire years averaged 34.8 stems/m^2, which was an increase of 202%. For the summer removal census, non-fire years averaged 18.4 stems/m^2 and fire years averaged 50.3 stems/m^2, which was an increase of 173%.

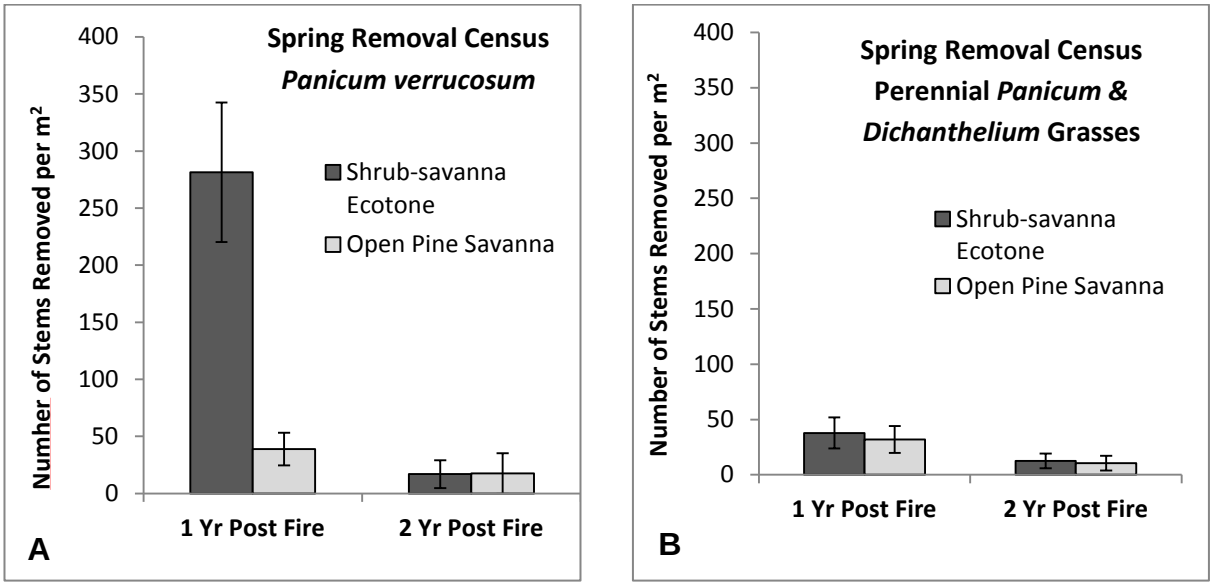

Figure 6. The effects of fire and habitat on *P. verrucosum* (A) and perennial *Panicum* and *Dichanthelium* grasses (B) from the spring removal census. Vertical bars are 95% confidence intervals.

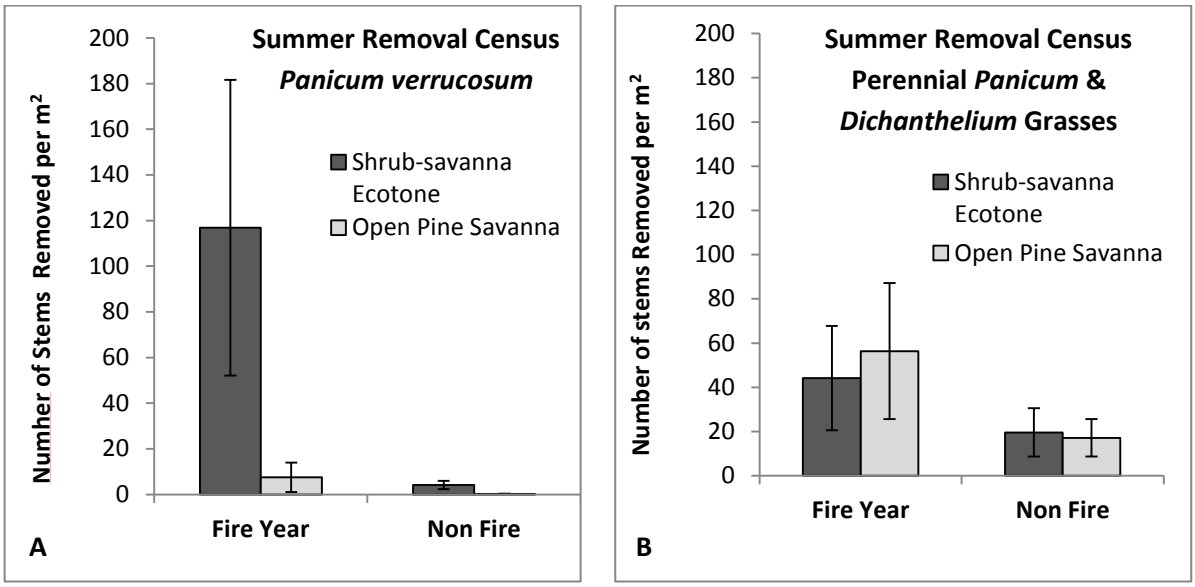

Figure 7. The effects of fire and habitat on *P. verrucosum* (A) and perennial *Panicum* and *Dichanthelium* grasses (B) from the summer removal census. Vertical bars are 95% confidence intervals.

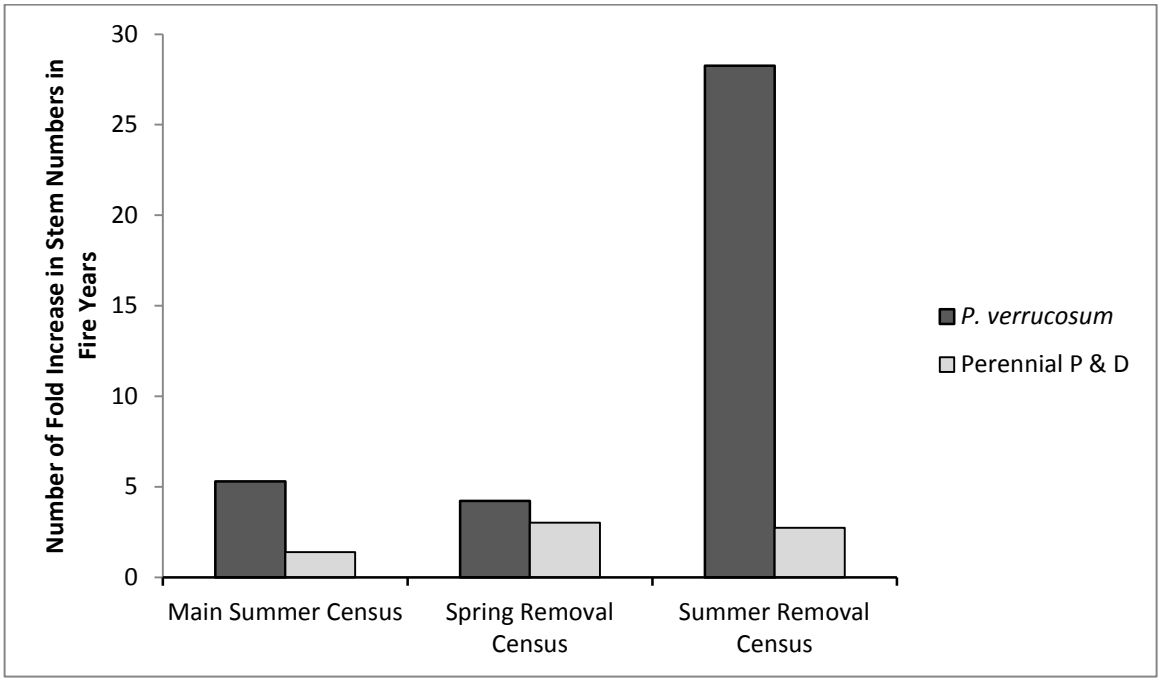

Figure 8. The stimulating effects of fire on the annual (*P. verrucosum*) and perennial *Panicum* and *Dichanthelium* grasses in the main summer census as compared to the spring and summer removal censuses. The removal censuses were done with only the *Panicum* and *Dichanthelium* grasses; thus no other data for the rest of the plant community had multiple censuses that could be compared.

Avian Granivory and Simulated Avian Granivory. Excluding avian granivores did not lead to changes in the stem numbers of the plant community. Avian granivores did not affect the stem numbers of *Panicum* and *Dichanthelium* grasses (Figure 9). The plots from which birds were excluded did not differ from the control plots (P = 0.60 Adjust = Tukey-Cramer). In addition, excluding birds did not lead to changes in the stem numbers of the non-*Panicum* and *Dichanthelium* species (Figure 10). Control and avian exclosure plots did not differ significantly in the number of stems of the non-*Panicum* and *Dichanthelium* species (P = 0.70 Adjust = Tukey-Cramer). Thus, there was no apparent effect of avian granivory on the stem numbers of *Panicum* and *Dichanthelium* grasses or on the rest of the plant community.

The long-term effects of avian granivory, which were simulated by removal of *Panicum* and *Dichanthelium* grasses, did not have an effect on the plant community (Figure 10).

Although the plots from which *Panicum* and *Dichanthelium* stems were removed had fewer *Panicum* and *Dichanthelium* stems than the control ($P < 0.001$ Adjust = Tukey-Cramer) or avian exclosure plots ($P < 0.001$ Adjust = Tukey-Cramer)(Figure 9), there was no subsequent increase in the stem numbers of the non-*Panicum* and *Dichanthelium* species ($F_{2,224} = .3$ $P = 0.72$) (Figure 10).

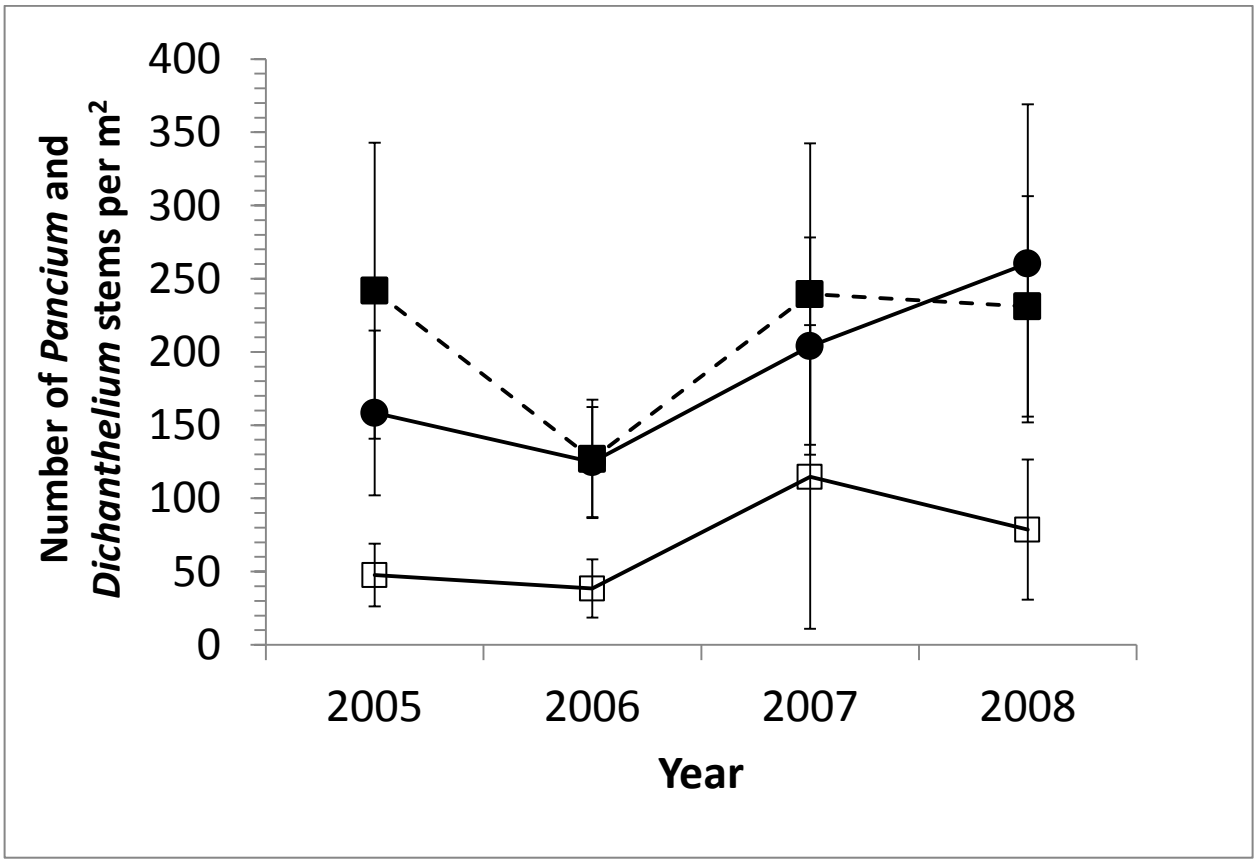

Figure 9. The effects of simulated avian granivory and avian granivores on *Panicum* and *Dichanthelium* grasses. Vertical bars are 95% confidence intervals.

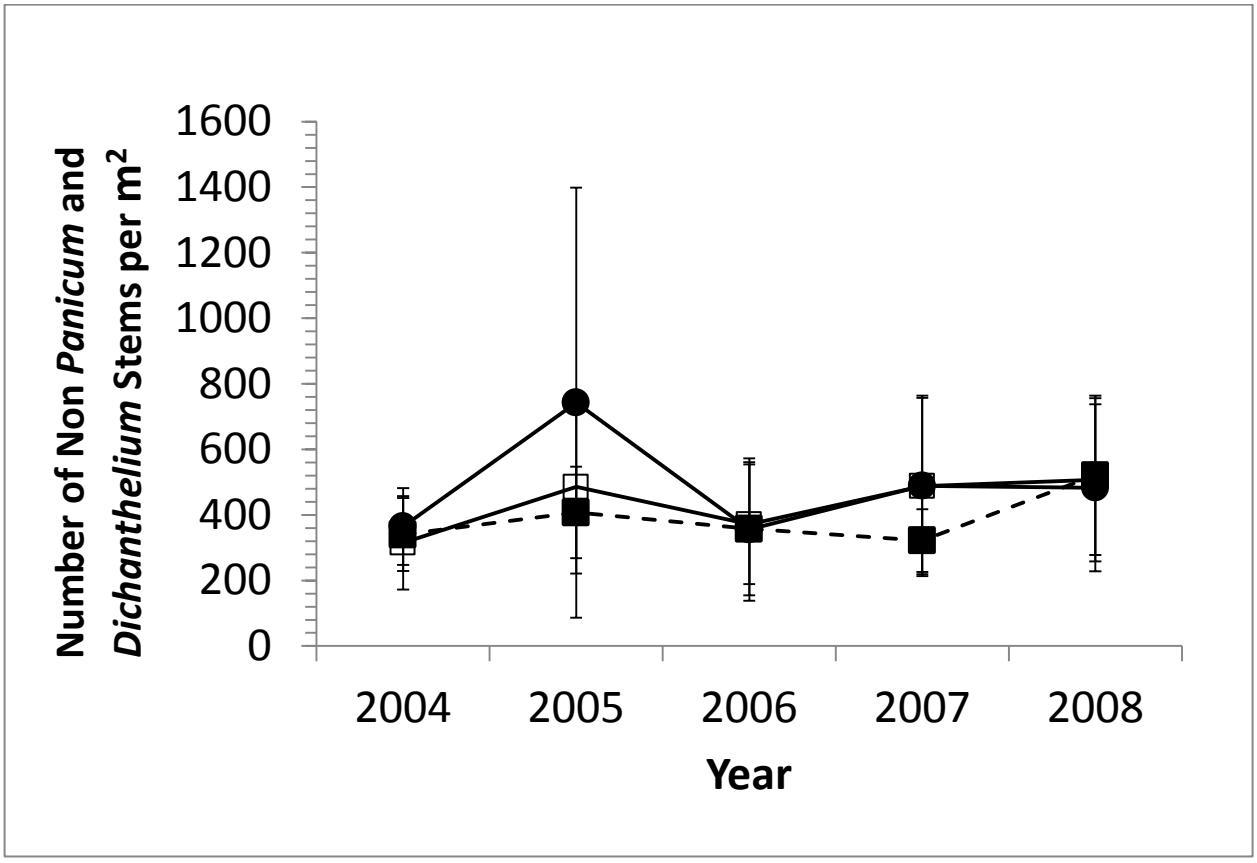

Figure 10. The effects of simulated avian granivory and avian granivores on the number of stems of the non-*Panicum* and *Dichanthelium* components of the plant community. Bunchgrasses are excluded. Vertical bars are 95% confidence intervals.

DISCUSSION

Fire and Life Cycles of Plants. The lightning-season prescribed fires at CWP stimulated stem production by both annual and perennial plants. Nonetheless, stem production was increased proportionately more after fire for annuals than perennials (Figure 11). In pine savannas fires may open space in the groundcover that annuals require. By germinating after fires, annuals may take advantage of the short duration of these open habitats.

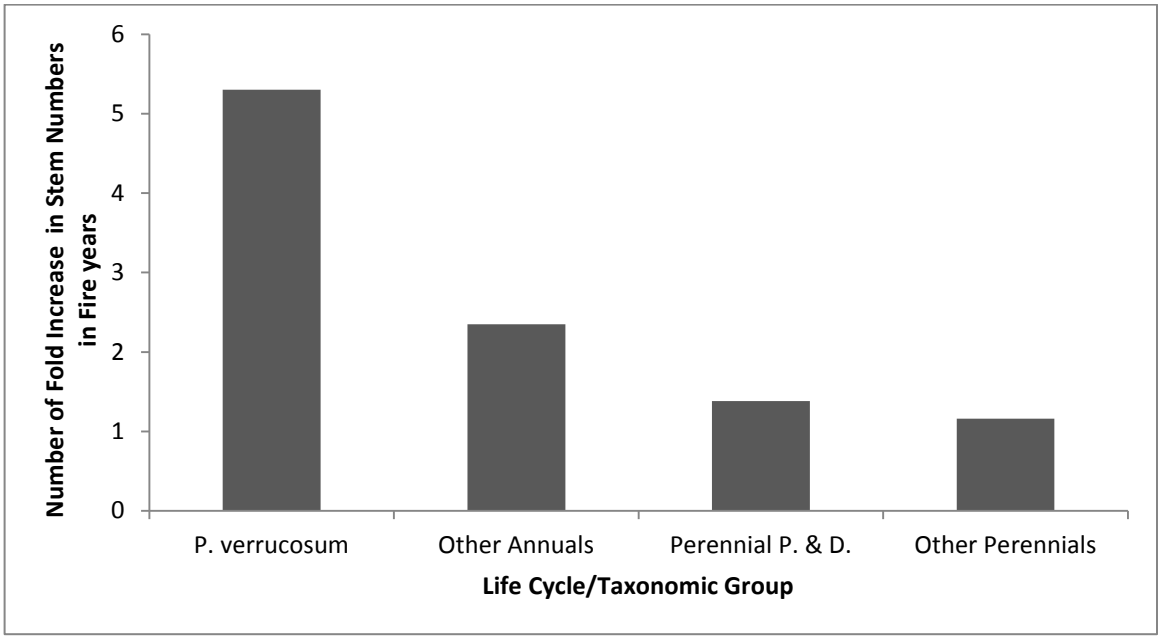

Figure 11. Mean increase in stem production of annual and perennial plants in years with fire compared to non-fire years. Annual and perennial *Panicum* and *Dichanthelium* grasses are separated from other annual and perennial plant species.

Large proportional increases in fire years resulted in annuals, especially *Panicum verrucosum,* being major components of groundcover plant communities at CWP. Such increases were especially noticeable in shrub-savanna edges. Annual plants have been recorded as responding to intense disturbances or when long-unburned pine savanna sites are burned (e.g. Maliakal et al. 2000). Nonetheless, when fires occurred every other year, recruitment occurred between fires as well as after fires, resulting in a continual presence of annuals as integral members of groundcover plant communities. By enhancing above-ground presence of such short-lived species, frequent fires would appear to increase biodiversity in pine savanna groundcover (cf. Glitzenstein et al. 2003), even though these species are likely to be present (as dormant seeds) over a wide range of fire frequencies (cf. Platt and Connell 2003). The presence of persistent seed banks of annual species in savannas could be a result of frequent seed production during times of high fire frequencies at the historical times

natural lightning-driven fires were most likely (Slocum et al. 2010). Such seed banks could then result in survival of some seeds during long return intervals of fires generated by human fire suppression.

Fires also stimulated stem production of perennial species. Increases in numbers of stems of perennial *Panicum* and *Dichanthelium* grasses, as well as other perennials, resulted from recruitment of new genets from seed, as well as production of new ramets via clonal growth from existing plants (also see Brewer and Platt 1994a,b). Perennial *Panicum* and *Dichanthelium* grasses were more stimulated by fire in the removal census plots than in the stem count plots (Figure 8). For the stem count plots, the perennial *Panicum* and *Dichanthelium* grasses present would have been the result of both vegetative growth from underground structures as well as germination of seeds. Thus fire may play an important role in stimulating germination of seeds of perennial species in pine savannas. Some perennial species may be present ephemerally, being replaced by recruitment from seeds after fires, while other perennial species persist on sites through successive non-fire and fire years via clonal growth. Such differences might result in some perennial species being sensitive to fire suppression, especially those with seeds that do not have longevity in seed banks(e.g., Gray et al. 2003, Slapcinsky et al. 2010).

There Were More Annual Stems in the Shrub-savanna Edge Than the Open Pine Savanna. In addition to fire, the presence of patches of shrubs in pine savannas also increased the number of stems of annuals. Annuals were much more common along the shrub-savanna edge than in the open pine savanna. Reasons for the increased numbers of annual stems along the shrub-savanna edge may or may not be a direct effect of the shrubs. For example, in pine savannas that are frequently burned, shrubs may persist in the more mesic sites and disappear from the drier areas. Like shrubs, annuals may also survive better

in these more mesic sites, because the seedling stage may be vulnerable to dry conditions (Iacona et al. 2010). Successful seedling establishment is essential for annuals, whereas perennials can persist indefinitely through vegetative growth.

Alternatively, the abundance of annuals in the shrub-savanna edge might be more directly related to the shrubs. Annuals are often associated with disturbances. For example, in old field succession in the southeastern United States, annuals are present in the early stages and perennials dominate later stages (Quarterman 1957, Pinder 1975). Soil disturbance caused by burrowing mammals has also been associated with increased composition of annuals in tall-grass prairies (Platt 1975, Suding and Goldberg 2001) and cool season anthropogenic grasslands (Questad and Foster 2007). The edge between bunchgrass dominated open pine savanna and the patches of shrubs may be an open space in the plant community where annuals survive.

It is of interest to consider the roles of both above ground competition for light and below ground root competition. Stature is important in determining the competitive hierarchies of herbaceous plants (Keddy and Shipley 1989). Thus, in the open pine savanna, the taller perennials may shade the smaller annuals. Along the shrub-savanna edge, however, the shrubs are taller than the herbaceous perennials. There were far fewer perennial stems in the shrub-savanna edge plots. When fires occur, they remove the shrub layer, and the annuals may then be able to quickly complete their life cycles in the spaces that are opened up before the shrubs again shade the site. When the shrubs partially shade the site, they may limit the density of perennials. The competitive environment underground also is probably different between the shrub-savanna edge and the open pine savanna. For example, annual and biennial prairie plants had less extensive root systems than perennial plants (Platt and Weis 1977). The bunchgrasses that dominate the open pine savanna have dense fibrous root

systems. Thus, where there are high densities of perennials, annuals with smaller root systems may be competitively inferior.

Avian Granivores Do Not Influence Pine Savanna Vegetation. Although the bird surveys did not detect differences between the bird communities in the open pine savanna and the shrub-savanna edge, it does not necessarily indicate that shrubs are unimportant in determining foraging behavior of avian granivores. Studies in other habitats have identified vegetation characteristics as important to where avian granivores forage (Davis 1973, Pulliam and Mills 1977, Milesi et al. 2008). In addition, breeding bird surveys of pine savannas have found habitat important in determining the bird community (Johnson and Landers 1982, Engstrom et al. 1984, Repenning and Labisky 1988, Wilson et al. 1995, Krementz and Christie 1999, Rutledge and Conner 2002, Allen et al. 2006).

Although pine savanna granivores clearly separate into social, conspicuous species and solitary, cryptic species, as described by Pulliam and Mills (1977) for an Arizona grassland, there were several reasons that this might not have been detected at CWP. The patches of shrubs were relatively small with the result that the point count foci that were at the shrub-savanna edge sites would have also included open pine savanna habitat. A second homogenizing factor was that the canopy of longleaf pines was for the most part continuous over the entire site. Thus, canopy birds would have been equally common between the shrub-savanna edge and open pine savanna sites. Finally, the point counts that were used would not have been likely to detect Bachman's and Henslow's Sparrows. When these species are foraging in their winter habitats, use of transect surveys that flush the birds is the best method to detect them.

Simulated avian granivory did not have an effect on the pine savanna groundcover vegetation. This was somewhat unexpected because *Panicum* and *Dichanthelium* grasses

were a significant component of the plant community at CWP (>20% of stems). Sufficient numbers of *Panicum* and *Dichanthelium* stems were removed in spring to result in a significant decrease in their numbers during the main summer censuses. Thus, the removal of their stems reduced their numbers significantly and would have been sufficient to test what effects these grasses were having on the rest of the plant community. *Panicum* and *Dichanthelium* grasses may not have an important structural role in pine savanna communities because they are short stature species. In addition, many of the short-lived perennial species do not have an extensive underground root system. Thus they may be poor competitors both above and below ground. Their removal may not have opened significant new space in the plant community that resulted in increases in other species.

Although *Panicum* and *Dichanthelium* grasses apparently did not structure the pine savanna groundcover, they showed strong responses to fire and habitat. *Panicum* and *Dichanthelium* grasses were somewhat more responsive to fire than the rest of the plant community. *Panicum verrucosum* was much more common in the shrub-savanna edge, and was strongly stimulated by fire. The perennial species of *Panicum* and *Dichanthelium* grasses were more stimulated by fire than the other perennial species. In addition, perennial *Panicum* and *Dichanthelium* grasses were about equally common between the shrub-savanna edge and open pine savanna, whereas the other perennials were more common in the open pine savanna. Thus, compared to the rest of the plant community *Panicum* and *Dichanthelium* grasses responded more strongly to fire, and were more abundant along the shrub-savanna edge. Hence, by increasing the numbers of *Panicum* and *Dichanthelium* grasses, fire and shrubs probably influence the composition/numbers of wintering avian granivores in pine savannas, even if those differences were not detected in this study.

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CHAPTER 3

EFFECTS OF HERBIVORY ON PINE SAVANNA GROUNDCOVER VEGETATION

INTRODUCTION

Herbivores can have large effects on plant communities by removal of woody vegetation or herbaceous competitive dominants. Rabbits and deer are represented in most terrestrial plant communities and their effects on vegetation have been widely studied. When open herbaceous plant communities are undergoing succession to forest, herbivores that consume woody species may have a large effect. This has been documented for abandoned pastures in rainforest in Costa Rica (Holl and Quiros-Nietzen 1999), and anthropogenic grasslands in Britain following introduction of myxomatosis (a viral disease that reduced rabbit populations by > 90%) (Thomas 1960). Removal of herbaceous competitive dominants is a second mechanism by which herbivores may affect plant communities. In Britain this pattern was observed when the dominant species was *Festuca ovina*, a perennial tussock grasses (Watts 1957, 1960, 1962, 1981). The exclusion of rabbits then led to subsequent increases in species richness. In insular systems, sometimes fast growing exotic species increase following eradication of introduced rabbits (North et al. 1994, Chapuis et al. 2004, Lees and Bell 2008).

Pine savannas offer an opportunity to study herbivory in a plant community that both contains woody species and has herbaceous competitive dominants (bunchgrasses). Pine savannas have herbaceous groundcover vegetation interspersed with patches of shrubs. Bunchgrasses constitute a large percentage of the biomass. Despite the apparent dominance of bunchgrasses, pine savanna groundcover contains an extremely species rich mixture of grasses and forbs. Because of the high species richness, herbivores potentially have a large effect on the species composition of the vegetation. Winter herbivory may have large effects on plant communities because there is limited variety of plant material available. Rabbits (Rödel et al. 2004) and deer (Doucet and Brown 1991) both have been found to expand their

diets in winter to increase the numbers of different woody species they consume to include normally undesirable species. Both of these studies were done in sites with prolonged winter snow cover. Although, the climate is less harsh in southeastern pine savannas, there is still a pronounced winter dormant season and summer growing season.

Pine savannas are an endangered ecosystem that has been reduced to <2% of their former area (Earley 2004). Thus, understanding how native herbivores affect their groundcover vegetation is important to restoration efforts. Eastern cottontails (*Sylvilagus floridanus*) and white-tailed deer (*Odocoileus virginianus*) occur in pine savannas. They are both found in most forested and open habitats in eastern North America, and are generalist herbivores that consume a wide variety of plant materials. *Odocoileus virginianus* is probably more common now than in the past because of extirpation of top predators. In contrast to the anthropogenic grassland habitats in Britain, where rabbits have been shown to have large effects on the vegetation, pine savannas are an intact native community. *Sylvilagus floridanus* has probably been a part of the pine savanna ecosystem for millions of years.

I tested the effects of winter herbivores in a pine savanna by using exclosure cages that excluded deer and rabbits. I wanted to determine which plant species the herbivores were selecting, as well as to describe subsequent changes in the pine savanna plant community that may result from these changes. The plant community in pine savannas is different along the shrub-savanna edge versus the open pine savanna. Furthermore, shrub cover may be important in determining where herbivores forage. By placing the exclosure cages both along the shrub-savanna edge and in the open pine savanna I evaluated the effects of shrub cover and plant composition on the foraging effects of herbivores.

METHODS

Study Site. The study site, Girl Scout Camp Whispering Pines (hereafter, CWP) is located at 30°41’ N; -90°29’ W in Tangipahoa Parish in eastern Louisiana. Situated within the loess plains at the western edge of the Gulf coastal plain, CWP soils are fine sands capped by loess (McDaniel 1990, Platt et al 2006). Uplands at the eastern edge of CWP about 25 m above mean sea level are dissected by ravines that drain into the Tangipahoa River, located at the western edge of CWP.

CWP contains a diversity of habitats. Most of the site contains upland pine savanna with a characteristic two-layered physiognomy (Gilliam et al. 2006). The overstory canopy consists primarily of *Pinus palustris.* The high diversity groundcover is dominated by bunchgrasses (*Schizachyrium scoparium*, *S. tenerum, Andropogon* sp.), but also contains low-stature shrubs (e.g., *Ilex glabra, Rhus coppalinum)* and numerous forbs (Platt et al. 2006, Keddy et al. 2006, Myers and Harms 2009). Patches of shrubs such as *Ilex vomitoria, Morella cerifera*, and more recently *Ligustrum sinense* occur along a gradual transition from open pine savanna to shallow ravines containing mixtures of pines (*Pinus palustris, P. echinata, P. taeda*) and hardwood trees (*Quercus stellata, Q. nigra*, *Carya texana*). These ravine woodlands merge with lower-slope ravine forest along creeks draining into the Tangipahoa River (Noel et al. 1998, Passmore 2009).

The site has had a varied land use history (Platt et al. 2006). After the American Civil War, open range grazing and habitat fragmentation from roads occurred across this region. The site was logged in the 1920-1930’s, and selective logging occurred shortly after the site was purchased as a Girl Scout Camp in the late 1960’s. Fire suppression also occurred over the next couple decades. Despite such anthropogenic disturbance, the vegetation has remained relatively intact over large areas of the site.

Ecological restoration and management of CWP habitats was initiated in 1990. Alternate year prescribed fires during the lightning season (April-May) have been conducted over the subsequent 20-year period. As a result, abundances of shrubs in the upland pine savanna have been reduced, and herbaceous groundcover plants have increased in abundance (Platt et al. 2006, Thaxton and Platt 2006). The fires, which often burn from uplands into ravine and lower-slope forests, have facilitated open woodlands along the slopes (Passmore 2009). Patches of shrubs now occur intermixed with large areas of predominantly herbaceous groundcover along the gradual transition from pine savanna to upper edges of ravines. I conducted this study in the pine savanna - slope woodland transition habitat at CWP.

Prescribed fires have been conducted on a biennial basis at CWP since 1990. A general description of the use of fires in restoration and management of habitats at CWP is available in Platt et al. (2006). During the current study, fires were ignited every other year in April – May after no rain had occurred for at least one week. Points of ignition were along trails defining borders of areas to be burned. As a result fires burned primarily as head/flank fires. Fires typically burned across upland pine savannas and spread downslope into ravines. These fires typically consumed almost all above-ground biomass in the open-pine savanna sites. In contrast, fires sometimes burned patchily through some of the plots on the shrub-savanna edge.

Field Layout and Experimental Plots. I located experimental plots for the study at twenty different divided according to both habitat and fire treatment. Ten sites were in pine savanna that contained herbaceous groundcover and few large shrubs (hereafter, open pine savanna). Ten sites containing some shrubs and herbaceous groundcover were in the transition from open pine savanna to patches of shrubs (hereafter, shrub-savanna edge). To

avoid confounding seasonal effects (e.g., variation in precipitation, freezing temperatures) with fire effects, the sites were located in separate burn units at CWP so that half were burned each year. The numbers of sites within the burn units were balanced equally between the two habitats so that five sites in open pine savanna and five sites in shrub-savanna edge were burned each year. Each site was burned twice during the study.

Three 1 x 1 m plots were randomly located at each site. Exclosures were placed over two plots during the dormant season, and the third plot not covered by an exclosure served as a control. Rebar posts marked each corner of the 1 x 1 m plots. Exclosures were put in place in October and removed in April.

The exclosures consisted of a frame of PVC pipe, sides of ½-inch hardware cloth, and a top of 1-inch crop netting. They were approximately 1 m high, and measured slightly more than 1 m^2 to minimize edge effect on the plots caused by their installation in the fall and removal the following spring. Metal fasteners attached the hardware cloth to the PVC pipe. Tops were fastened to the hardware cloth using masonry string. Four fence posts were placed slightly beyond the four corners of the plot. When cages were installed, the PVC pipe slid over these fence posts, holding the cage firmly in place.

Exclusion of large herbivores was accomplished by placing the exclosure cage walls flush with the ground. Two abundant large herbivores at the site, white-tailed deer (*Odocoileus virginianus*) and Eastern cottontails (*Sylvilagus floridanus*), thus had no access to vegetation when exclosures were in place. Plots were not buried in the soil; exclosures designed to exclude small mammals such as voles and mice typically are buried ½ m (Brown and Davidson 1977, Davidson et al. 1984,1985, Thompson et al. 1991, Heske et al. 1994). Thus, such mammals were not excluded from exclosures.

There was a small difference between the two covered herbivore exclusion plots at each site. *Panicum* and *Dichanthelium* grasses were removed twice a year as part of a related study on the vegetation structure of pine savannas in one of the plots. Removal of these species, however, was found to have minimal measureable effects on the vegetation (Chapter 2). Hence, I included the second herbivore exclusion plot from which the *Panicum* and *Dichanthelium* were removed as a replicate.

Plant Census. All plants in each plot were censused annually in late summer-early fall. Identification of plants was based on specimens collected at CWP and archived in the LSU herbarium (<http://www.herbarium.lsu.edu/>) and the USDA plants database (http://plants.usda.gov/sitemap.html). A species list of all plants sampled is presented in Appendix A. Abundances were estimated as numbers of stems present during census. For many of the annual plants a stem would represent a genetic individual; for other plants the multiple stems would have been genetic clones.

The plots were sampled a total of five years beginning in 2004. To avoid confounding seasonal effects with treatment effects, the order in which the plots were sampled was random with regard to treatment, fire year, and presence of shrubs. The sequence was established the first year and followed in subsequent years. Using the same sequence each year helped to reduce the variation caused by the seasonal phenology of plant growth and flowering.

Three variables were used to assess the potential effects of excluding large herbivores:

1) Stem densities of plants were obtained for three categories:
    a) Bunchgrasses. Large, clump-forming grasses were considered separately from the rest of the plant community because they may be important in structuring pine savanna groundcover plant communities (Pinder 1975, Myers and Harms 2009).

Four readily identified species were the dominant bunch grasses: *Schizachyrium scoparium, S. tenerum, Andropogon gyrans,* and *Aristida purpurascens*. Less common unidentified *Andropogon* species also were included as bunchgrasses.

b) Non-bunchgrass Herbaceous Species. I included all non-bunch grasses and forbs in this category except for *Phyllanthus caroliniensis* and *Panicum* and *Dichanthelium* grasses. *Phyllanthus carolinienesis* was removed from the analysis because it was highly patchy in distribution and it sometimes was extremely abundant following fire. Such variation resulted in extreme values and high variation in the data, and so this species was excluded. *Panicum* and *Dichanthelium* grasses were excluded because they were removed from one set of plots. I removed the data for these species from the other plots so that the replicate herbivore exclusion plot could be used in analyses.

c) Woody Species. I included both small trees and shrubs in this category.

2) Species Richness. This was the total number of species in each plot. Species of *Panicum* and *Dichanthelium* grasses were excluded from the analysis so that data from the replicate herbivore exclusion plot could be used.

3) Species Evenness. Species evenness based on stem counts was calculated with bunchgrasses, *Phyllanthus caroliniensis*, and *Panicum* and *Dichanthelium* grasses excluded. Since bunchgrasses were a large component of the plant community, and they increased over the 5 seasons of the experiment, including them in the evenness calculations would have resulted in changes of species evenness.

Statistical Analysis. Data analysis was generated using SAS software, Version 9.3.1,

service names are registered trademarks or trademarks of SAS Institute Inc., Cary, NC, USA. ANOVA was conducted using PROC Mixed and data were tested for normality with Shapiro Wilk. All factors and interactions were tested. Log and square root transformation improved normality, but analysis was ultimately performed on untransformed variables because they did not strongly deviate from normality. Tukey-Kramer adjustment was used for multiple comparisons.

RESULTS

Bunchgrasses showed strong temporal patterns of increase over the five years of study. Mean numbers of stems of bunchgrasses increased in both habitats, especially in the open pine savanna, but also in the shrub-savanna edge (Figure 12). Increases in stem numbers were significant in both open pine savanna ($F_{4,112} = 25.0$ $P < 0.001$) and shrub-savanna edge ($F_{4,112} = 22.5$ $P < 0.001$). As indicated in Figure 12, increases in stem numbers occurred more rapidly in the open pine savanna than in the shrub-savanna edge. For the open pine savanna in 2004 there were an average of 181 bunchgrass stems/m,^{2} and by 2008 this had increased to 719 stems/m.^{2} This was an increase of 297%. For the shrub-savanna edge in 2004 there were an average of 50 bunchgrass stems/m,^{2} and by 2008 this had increased to 147 stems/m.^{2} This was an increase of 194%. As a result, the year by habitat interaction was significant ($F_{4,224} = 14.2$ $P < 0.001$).

Herbivores affected bunchgrass dynamics. More stems of bunchgrasses were present each year in plots from which large mammalian herbivores were excluded during winter than in plots where these herbivores had access ($F_{2,224} = 4.6$ $P = 0.011$). Further, these differences occurred in both open pine savanna (Figure 13) and shrub-savanna edge (Figure 14). The bunchgrasses in the herbivore exclusion plots trended towards higher numbers of stems in both the open pine savanna ($F_{2,112} = 2.8$ $P = 0.07$) and the shrub-savanna edge

($F_{2,112}$ = 2.3 P = 0.105). The plots with exclosures had significantly more bunchgrass stems than the control treatment without an exclosure (P = 0.03 for replicate 1 versus control, and P = 0.025 for replicate 2 versus control, adjust = Tukey-Kramer), but were not significantly different from each other (P = 0.999, adjust = Tukey-Kramer).

Increase in numbers of stems over time did not characterize the other groundcover vegetation at CWP. There were significant fluctuations in the number of stems of non-bunchgrass herbaceous species from year to year, ($F_{4,224}$ = 14.7 P < 0.001). There were more non-bunchgrass stems in 2004, 2005, and 2008, than in 2006 and 2007, but no consistent pattern of increase over time (Figure 15). For example, stem numbers averaged 214 stems/m^2 in 2004, and 236 stems/m^2 in 2008, which was not significant (P = 0.27; adjust = Tukey-Kramer). Thus, despite the large increase in stem numbers of bunchgrasses, there was no clear pattern of subsequent decline in the number of stems of the other herbaceous groundcover species.

Herbivores did not affect numbers of stems of other groundcover vegetation. No trends were evident, as indicated in Figure 15. Numbers of stems did not differ significantly between plots with and without exclosures ($F_{2,224}$ = .5 P > F = 0.64). Likewise, herbivores also did not affect numbers of stems of woody species ($F_{2,223}$ = .9 P > F = 0.42). Although numbers of stems of woody species declined during the study($F_{4,223}$ = 14.0 P < 0.001), these effects did not appear to result from differences in herbivory (Figure 16).

Increases in numbers of stems of bunchgrasses did not affect species richness and evenness of the groundcover plant community. There were yearly fluctuations in mean species richness for all three treatments (Figure 17). These fluctuations differed significantly among years ($F_{4,224}$ = 12.7 P < 0.001), but not among treatments ($F_{2,224}$ = 2.8 P = 0.06). Slight increases in species richness may have occurred over time. The largest number of

species occurred in 2008, and it was significantly higher than all of the years except 2005 (P = 0.27; adjust = Tukey-Kramer). The increase in bunchgrasses also did not affect the evenness of the remaining plant community. Although 2007 had significantly higher evenness than 2004, 2005, and 2008, all other pairwise comparisons were not significant (Figure 18).

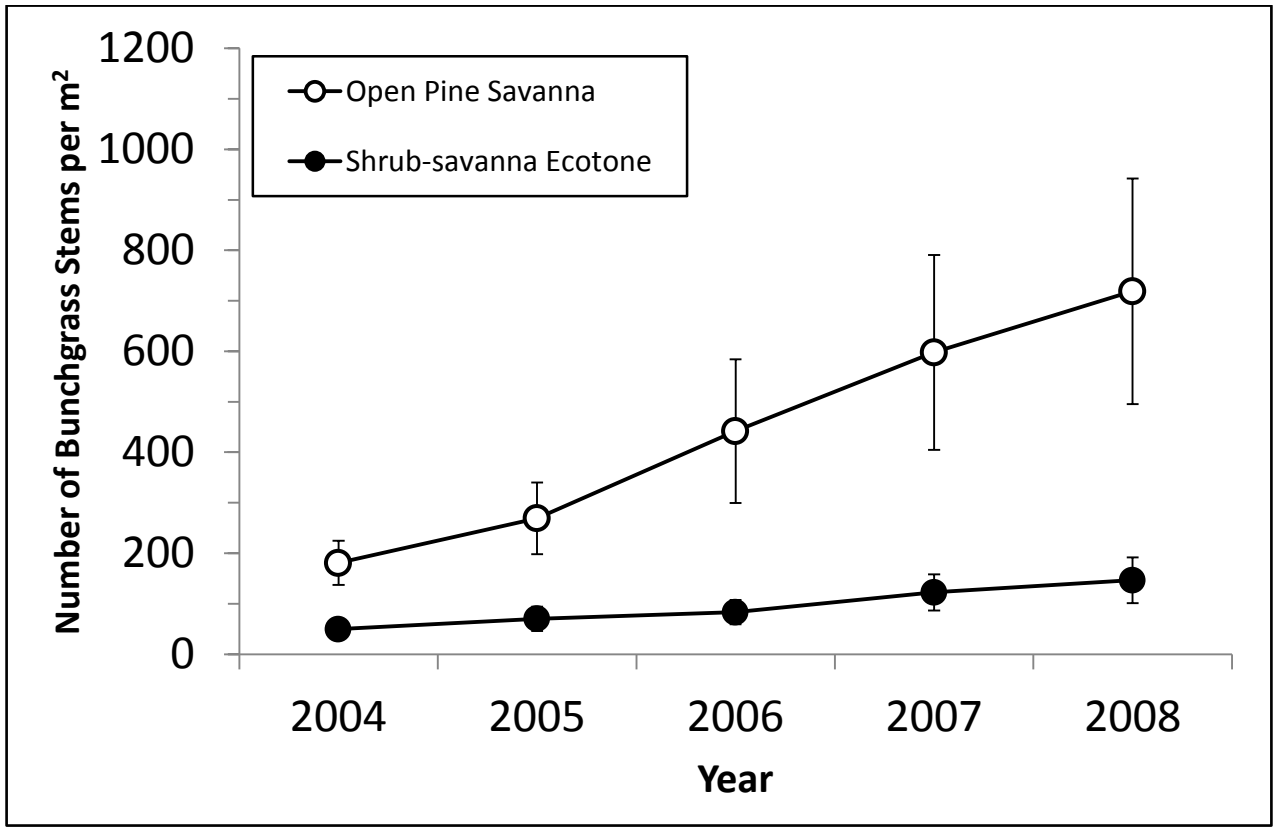

Figure 12. Mean numbers of bunchgrass stems/m^2 in open pine savanna and shrub-savanna edge over the five years of the study. Vertical bars are 95% confidence intervals.

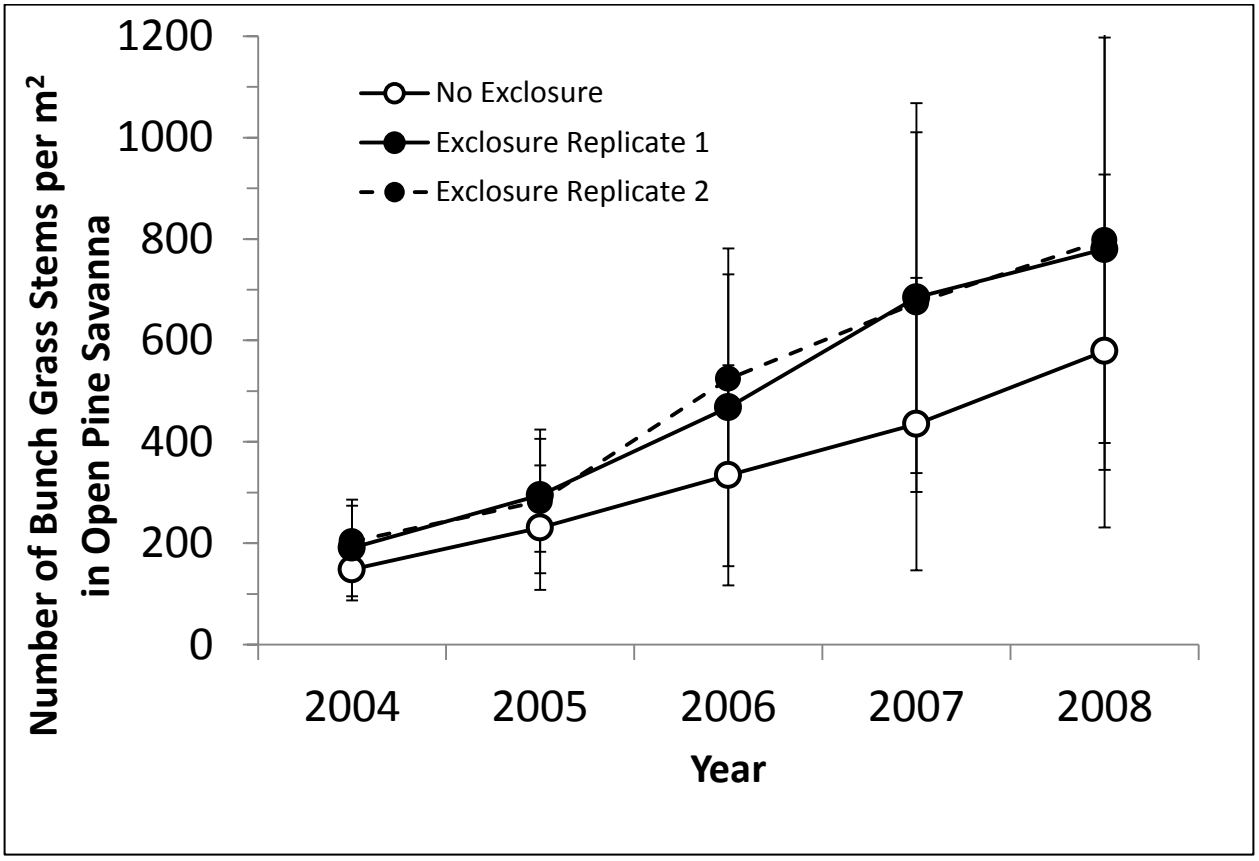

Figure 13. Mean numbers of bunchgrass stems/m^2 in herbivore exclosure and control treatments in open pine savanna over the 5 years of the study. Vertical bars are 95% confidence intervals for the different treatments within each year.

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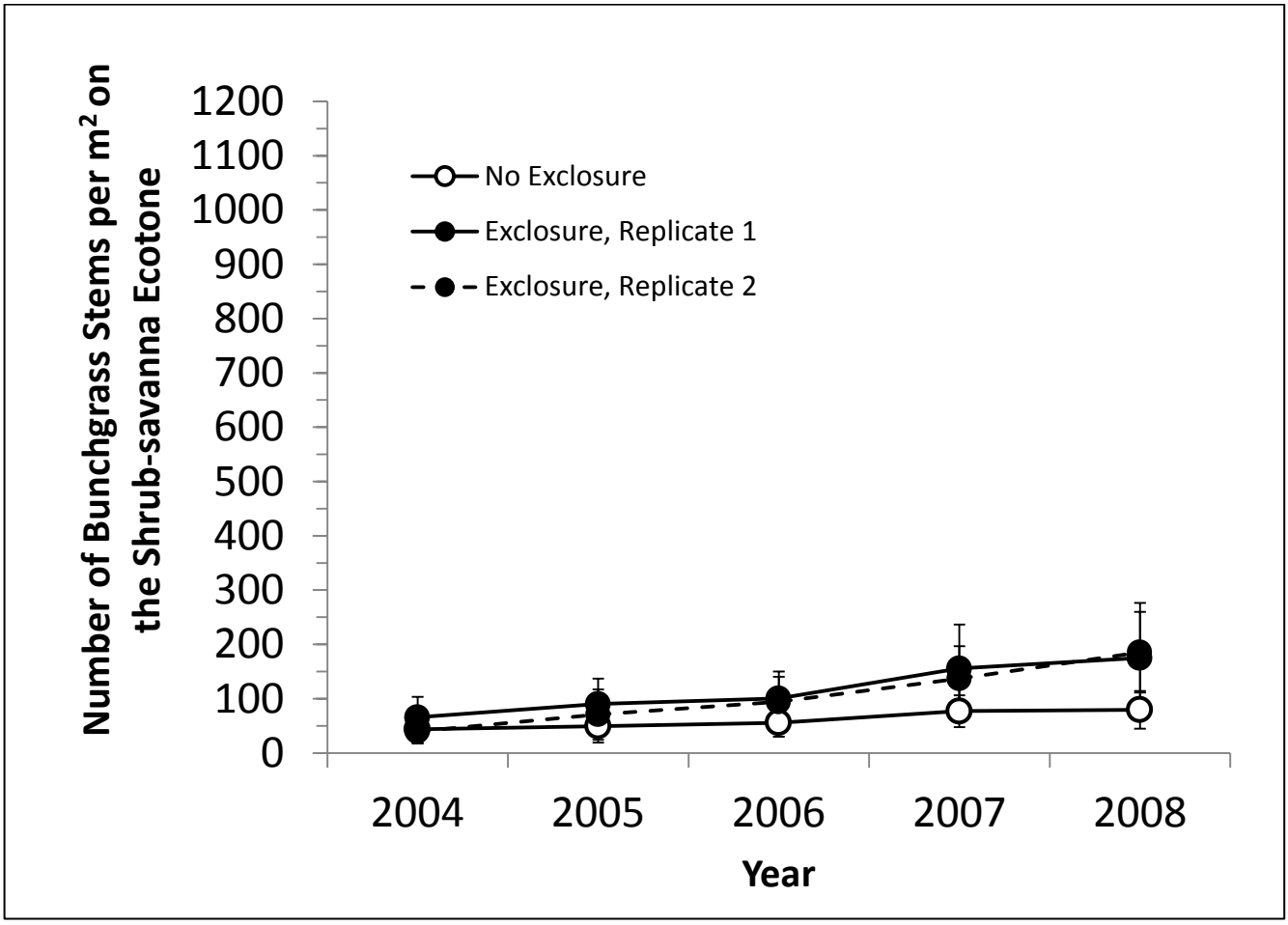

Figure 14. Mean numbers of bunchgrass stems/m^2 in herbivore exclosure and control treatments in shrub-savanna edge over the 5 years of the study. Vertical bars are 95% confidence intervals for the different treatments within each year.

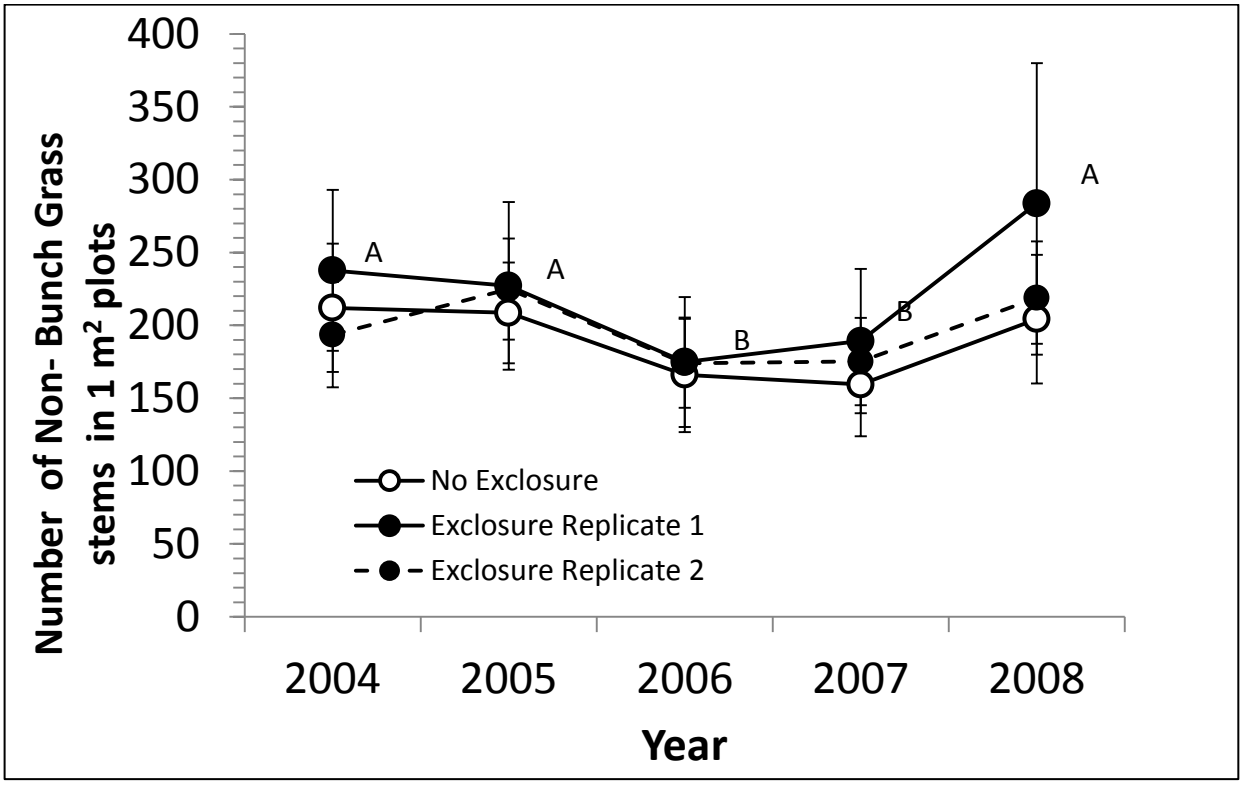

Figure 15. The number of stems of non-bunchgrass herbaceous species. *Panicum* and *Dichanthelium* grasses and *Phyllanthus caroliniensis* are excluded. Error bars are 95% confidence intervals for the differences between treatments within each year. The letters indicate which years are different (adjust = Tukey-Kramer).

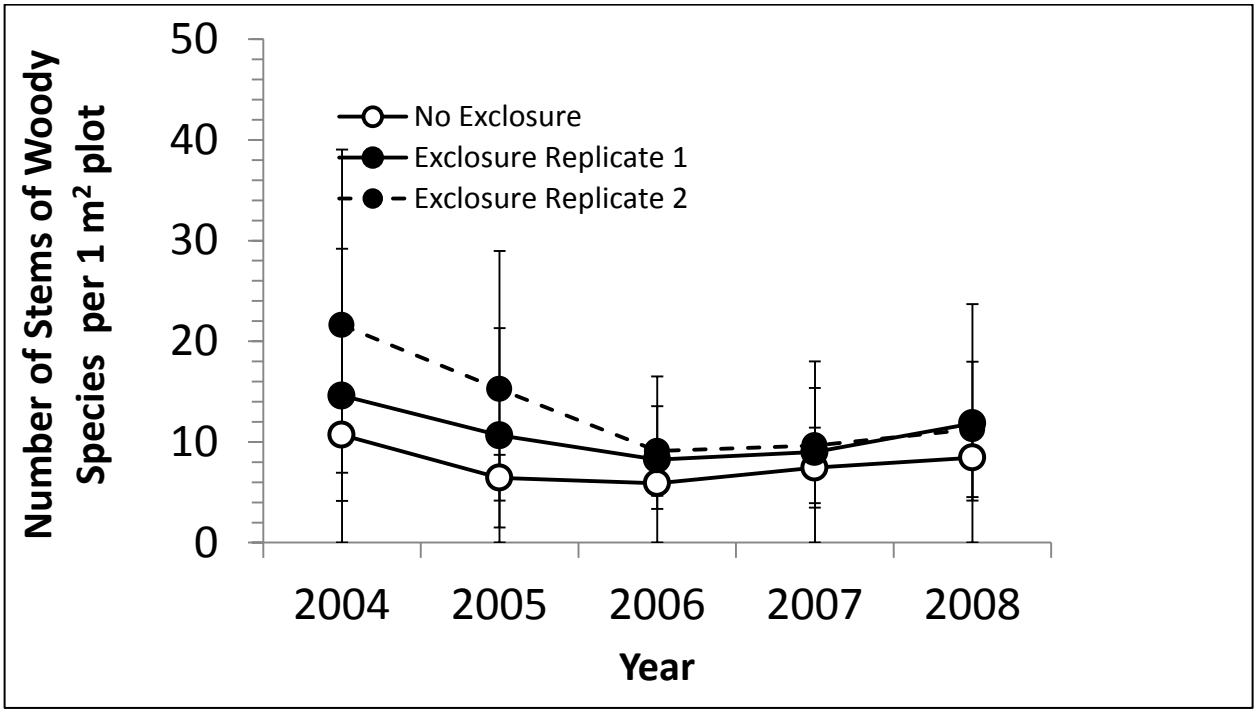

Figure 16. The number of stems of woody species over the five years of the study. Replicate 1 had an exclosure cage placed over the plot in the wintertime (October-April) that excluded herbivores. Replicate 2 also had an exclosure cage placed over the plot with a small subset (*Panicum* and *Dichanthelium* grasses) of the plant community removed twice annually. The *Panicum* and *Dichanthelium* grasses were part of a different study, but since their removal did not affect the stem numbers of woody species, the data from these plots are reported here to add replication to the experiment. Error bars are 95% confidence intervals for the differences within years.

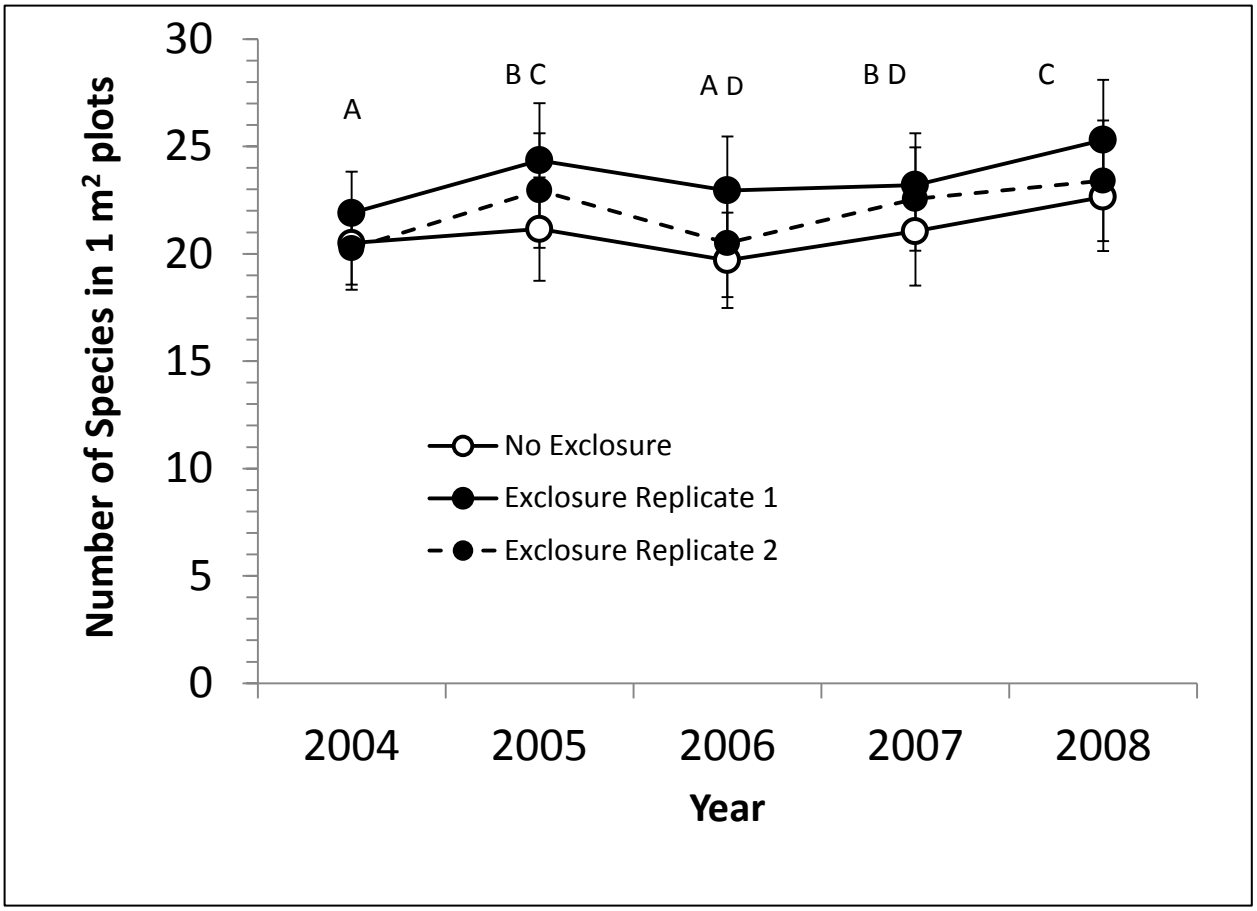

Figure 17. The species richness of the three different treatments. *Panicum* and *Dichanthelium* grasses are excluded from the species totals because they were removed from the Exclosure Replicate 2 treatment. Error bars are 95% confidence intervals for the differences between treatments within each year. Letters indicate differences between years (adjust = Tukey-Kramer).

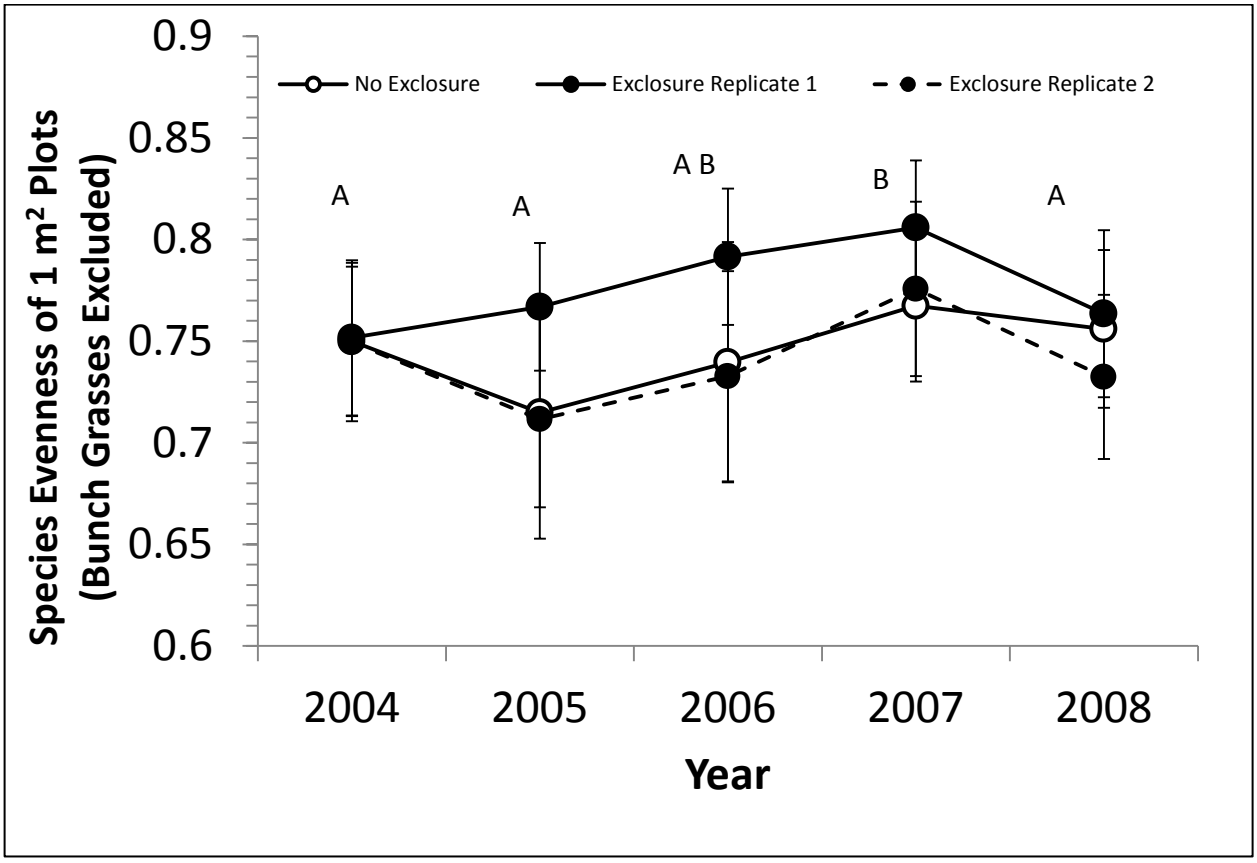

Figure 18. Species evenness in the three treatments over 5 growing seasons. Bunch grasses, *Panicum* and *Dichanthelium* grasses, and *Phyllanthus caroliniensis* are excluded from the analysis. Error bars are 95% confidence intervals for differences in treatment within years. Letters indicate differences between years (adjust = Tukey-Kramer).

DISCUSSION

Winter Herbivores Selected Bunchgrasses. The herbivores at CWP apparently selected bunchgrasses over the other species in the plant community. They may have selected bunchgrasses because the bunchgrasses remain green longer than most of the rest of the plant community during winter. At CWP many of the annual plants have completed their life cycle by the end of the growing season, and the aboveground parts of many of the perennial dicots die back. Plant tissue has higher nitrogen in growing parts than in senescent and dead tissue, and nitrogen level is accepted as a limiting nutrient for herbivores (Mattson 1980). Rödel (2005) found that European rabbits (*Oryctolagus cuniculus*) selected vegetation in a pattern consistent with selection for higher nitrogen content. In the early winter they consumed more grass leaves and stems, but in late winter they consumed more ground-level sprouts and roots. In early winter, nitrogen content did not differ between the leaves and stems and the ground-level shoots and roots, but by the end of winter the amount of nitrogen in the leaves and stems had decreased and was lower than in the ground-level shoots and roots. Thus, if bunchgrasses are green more of the year, their selection by herbivores may be a result of the herbivores selecting for higher nitrogen tissue.

Effects of herbivores on the plant community in winter may be related to how severe the winter season is. In climates where there is snow cover for parts of the winter season, woody shoots and bark may be an important component of the diet. The lack of effects of herbivores on woody vegetation in pine savannas may be a result of bunchgrasses staying green through the winter. Thus, effects of herbivory might not be the same in other colder climate habitats that are dominated by bunchgrasses such as prairies.

Because this study was limited to winter herbivory, there may be other effects that herbivores have on the vegetation during the summer growing season. For example, in a

grassland in Britain, annual species and seedling abundance increased with rabbit exclusion (Crawley 1990, Edwards and Crawley 1999). If rabbits at CWP were having an effect on seedling survival of annuals, it would mostly have not been detected, because the exclosures were off during this time.

Herbivory in the Open Pine Savanna and Shrub-savanna Edge: Effects of Shrub Cover and Forage Density. That the effects were similar in the open habitat and the shrub-savanna edge suggests that the herbivores were not specifically using the shrubs for cover. Although Eastern cottontails were found to be more common near shrubs in an agricultural landscape (Swihart and Yahner 1982, 1984), in pine savannas, the dense groundcover vegetation may provide sufficient cover.

The density of their preferred forage also had minimal effect on where herbivores foraged. Bunchgrasses were much more abundant in the open pine savanna, yet similar increases inside the exclosure cages were observed in both habitats. The density of bunchgrasses in the shrub-savanna edge may be sufficiently high that it doesn't affect the foraging behavior of herbivores.

Bunchgrass Stems Increased over Time and Their Increase Had Minimal Effect on the Pine Savanna Plant Community. Regardless of whether herbivores were excluded, the steady increase in bunchgrasses contrasted with what was happening with the rest of the plant community. The increase in bunchgrasses may be an ongoing effect of the alternate year prescribed fire that was initiated in 1992 as habitat restoration. Thus, more than 15 years after beginning habitat restoration, the bunchgrasses were still increasing. Alternately, the increase in bunchgrasses may be a result of precipitation patterns or fire intensity. For example, hot fires may result in mortality of bunchgrass stems. If conditions at the time of prescribed fires are wet with the result that fires are not as hot, then the mortality of

bunchgrass from fire may be reduced. Thus, steady increases in bunchgrasses could occur over several years with less intense fires.

Because this study counted stems rather than mark and follow individual clumps of bunchgrasses, the mechanism by which bunchgrasses were increasing was not established. For example, the increase in bunchgrasses may be occurring through the establishment of new clumps of bunchgrasses. Alternatively, the stem numbers might be increasing because the existing clumps were increasing in size. The relatively steady increases in the bunchgrass stem numbers may suggest that the increase was a result of increases in the size of the individual clumps, because establishment of new clumps may be more susceptible to stochastic variation caused by rainfall or other factors.

That the large increase in bunchgrasses had no measurable effects on the plant community was somewhat unexpected because as one group of species increases, there would presumably be less space for the rest of the plant community. The absence of a measurable effect, however, is consistent with other studies of bunch grasses at CWP (Keddy et al. 2006, Roth et al. 2008, Myers and Harms 2009). A study of an old field in South Carolina with herbaceous vegetation similar to pine savannas found that removal of bunchgrasses resulted in an increase in biomass of the smaller-stature subordinates, but did not result in an increase in their stem numbers (Pinder 1975). All of these studies involved physical removal of bunchgrasses, and then looked for an expected subsequent increase in other species in the plant community. This study in contrast took advantage of a natural increase in stem numbers of bunchgrasses that was occurring, and hence avoided possible confounding variables involved with the removal of bunchgrasses such as soil disturbance or effects of herbicide. Thus, the two different approaches resulted in similar outcomes. Over the short term, competition from bunchgrasses does not affect the pine savanna community.

Role of Herbivores in Pine Savannas and their Restoration. Since the steady increase in bunchgrasses may be a result of the ongoing habitat restoration at CWP, the presence of herbivores appears to slow down this process. Whether the effects of winter herbivores on pine savannas are only transient or more permanent is unresolved. Herbivores clearly had a short-term effect on the pine savanna vegetation by slowing the rate at which bunchgrass stem numbers were increasing. With herbivore exclusion, the bunchgrasses increased more rapidly. The ultimate outcome of this, however, is not known. The stem numbers of bunchgrasses cannot continue to increase indefinitely, but whether they will remain at a permanently higher level inside the herbivore exclosures has not been determined. For example, competition with other plants (conspecific or non-conspecific) rather than herbivores may ultimately limit the number of bunchgrasses.

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CHAPTER 4

INVASION OF A SOUTHEASTERN PINE SAVANNA BY JAPANESE CLIMBING FERN*

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Lygodium japonicum (Thunb. ex Murr.) Sw. is a perennial fern with twining fronds produced by underground rhizomes (Clarke 1936). This fern is native to open forests and forest edges in temperate, subtropical and tropical regions of eastern and southeastern Asia, East Indies, and northern Australia (Singh and Panigrahi 1984, Munger 2005, Willis et al. 2006). *Lygodium japonicum* was introduced to North America as an ornamental; the first known wild populations were recorded in Georgia in 1903 (Pemberton and Ferriter 1998). Now widespread in the southeastern United States, Japanese climbing fern occurs in human-modified habitats, as well as forests and woodlands (Langeland and Burks 1998, Rosen et al. 2003), where it often forms dense mats that grow on and cover native species (Gagnon et al 2005, Zeller and Leslie 2004). *Lygodium japonicum* has been the subject of management plans that often emphasize the dearth of scientific data on climbing ferns (e.g., Ferriter 2001)

Lygodium japonicum has been designated a threat to pine savannas (Munger 2005, Stocker and Hupp 2008). Nonetheless, there is minimal documentation of invasions in the literature, although fires in pine savannas have been hypothesized to facilitate invasion (e.g., Wade et al. 2000). Pine savannas (sensu Platt 1999) have been reduced to less than 3% of their original extent by fragmentation and fire suppression, and most that remain are degraded (Platt 1999, Varner et al. 2005, Means 2006). Invasions by *L. japonicum* thus could have major consequences for these fire-frequented ecosystems containing species rich and endemic groundcover vegetation (Sorrie and Weakley 2006).

Invasion of *L. japonicum* may constitute a major threat to the high biodiversity groundcover of longleaf pine savannas. *Lygodium japonicum* tends to be intolerant of extreme drought and/or flooded conditions (Bargeron et. al 2008), suggesting that habitats with mesic soils may be at highest risk for invasion. Old-growth mesic pine savannas with mixed sandy-clay soils ideal for fern growth thus may be especially susceptible to invasion by

L. japonicum (e.g., the Wade Tract; Platt et al. 1988). Such pine savannas also tend to have pronounced biodiversity at small scales (Peet 2006, Platt et al. 2006, Carr et al. 2010). Might invasion by a species capable of forming mats on top of existing groundcover plants compromise the high biodiversity of mesic pine savannas?

Lygodium japonicum has been present at Girl Scout Camp Whispering Pines in eastern (Tangipahoa Parish) Louisiana for more than two decades. This upland, mesic site, described in Platt et al. (2006), historically contained pine savannas with a two-layered physiognomy resembling that described in Gilliam et al. (2006). The overstory contained predominantly longleaf pine, *Pinus palustris* Mill. (Noel et al. 1998). Warm-season grasses, especially bluestems (*Schizachyrium scoparium* (Michx) and Nash, *S. tenerum* Nees), not only dominate the groundcover vegetation , but also contain high biodiversity of herbaceous plants mixed with shrubs and lianas (Platt et al. 2006). Pine savannas at Camp Whispering Pines have experienced different land uses during the past century: logging in the 1920-1930's and 1960-1970's, cattle grazing until the 1960's, and fire suppression in the 1980's after becoming a Girl Scout Camp. Nonetheless, pine savanna vegetation persisted in upland areas and along slopes, intermixed with thickets containing native and exotic hardwoods, along with *L. japonicum* (Platt et al. 2006).

Camp Whispering Pines has been undergoing restoration since the early 1990s. Prescribed fires during the spring-summer transition, when lightning fires would have occurred naturally, have been implemented in alternate years, beginning in 1992. Different sections have been burned in prescribed fires each year over this 18 year period. Cover of hardwood shrubs has been greatly reduced as a result of the biennial fires, but shrub thickets remain scattered in the landscape (Thaxton and Platt 2006, Passmore 2009).

This note compiles data from two different experimental field studies that documented invasion of mesic pine savanna by *L. japonicum*. One study examined effects of granivores and herbivores on species composition and abundance in pine savanna groundcover. The other study explored the combined influence of hurricane, fire, and animal disturbances on species composition in pine savanna groundcover. During the course of both field experiments, changes in the presence and abundance of *L. japonicum* offered an opportunity to examine invasion in this pine savanna.

Is *L. japonicum* more likely to invade disturbed or undisturbed areas of pine savannas, as suggested by Rejmánek et al. (1989)? We documented the occurrence of *L. japonicum* at 20 randomly selected sites at Camp Whispering Pines. Ten sites were located along margins of shrub thickets and a similar number were located in nearby herbaceous groundcover. Three 1-m square plots were installed at each site. *Lygodium japonicum* occurred in all sites with shrub thickets (10/10), but in only 2 of 10 of the sites with herbaceous groundcover. On average, the fern occurred in 2.3 of the 3 plots in each shrub thicket, but in 0.3 of 3 plots in the herbaceous groundcover sites where present. These data indicate that *L. japonicum* may have initially invaded disturbed areas during the period of fire suppression, generating much more frequent occurrence in shrub thickets than in herbaceous groundcover.

We further hypothesized that this species is invading the herbaceous groundcover of Camp Whispering Pines. In 2006, 128 1-m^2 circular plots were randomly located in areas without *Lygodium japonicum* within three different regions of Camp Whispering Pines. Plots were censused annually in the summer from 2006 through 2009. Stem counts were recorded for all plants within each plot. Plants were identified to species and placed in the following categories: fern, forb, graminoid, vine, or woody. Complete census of all plots did not occur each year; some plots were destroyed by salvage operations after Hurricane Gustav, and

time constraints reduced sampling in some years. *Lygodium japonicum* occurrence increased over time in these plots. The percentage of plots that contained *L. japonicum* increased, especially after fires in 2006 and 2008 (Figure 19). More than twice as many plots contained the fern after four years as when the plots were installed. These results indicate that the herbaceous groundcover in pine savannas at Camp Whispering Pines is being invaded by *L. japonicum,* and that fire may facilitate invasion.

Understanding responses of *L. japonicum* to fire is important because fire is an integral part of restoring and managing pine savannas. We used 23 1-m^2 plots in shrub thickets at Camp Whispering Pines to assess responses to prescribed fires. These plots burned in prescribed fires in 2006 and 2008. In these plots we clipped and removed all fronds of *L. japonicum* eight times beginning in 2006. We clipped *L. japonicum* at the time that the plots were burned in the spring, and again 3 months and 15 months after spring fires, during the late summer when annual growth of fronds had slowed. Fronds were clipped in both non-burn years as well as burn years, hence biomass collected for the 3 and 15 month post-fire sampling periods represents only the current season's summer growth. All underground rhizomes were left intact. The fern fronds were oven dried at 75°C and weighed to the nearest 1/100^{th} gram.

Fire stimulated aboveground growth of *L. japonicum* fronds. The aboveground biomass was greater three months after both fires than at similar times in non-fire years (Figure 20). Responses differed in fire and non-fire years, both for 2006 ($t = 2.98$, $df = 22$, $p = .007$) and 2008 ($t = 2.07$, $df = 22$, $p = .05$). Furthermore, mechanical removal had no long term effect on the mass of *L. japonicum* fronds. The total grams of *L. japonicum* dry weight did not decrease between the two successive sampling periods. These data thus show little effect of long-term removal of aboveground biomass, but increases in aboveground biomass

immediately after fire. We propose that frequent fires do not deter invasion of pine savannas by *L. japonicum.*

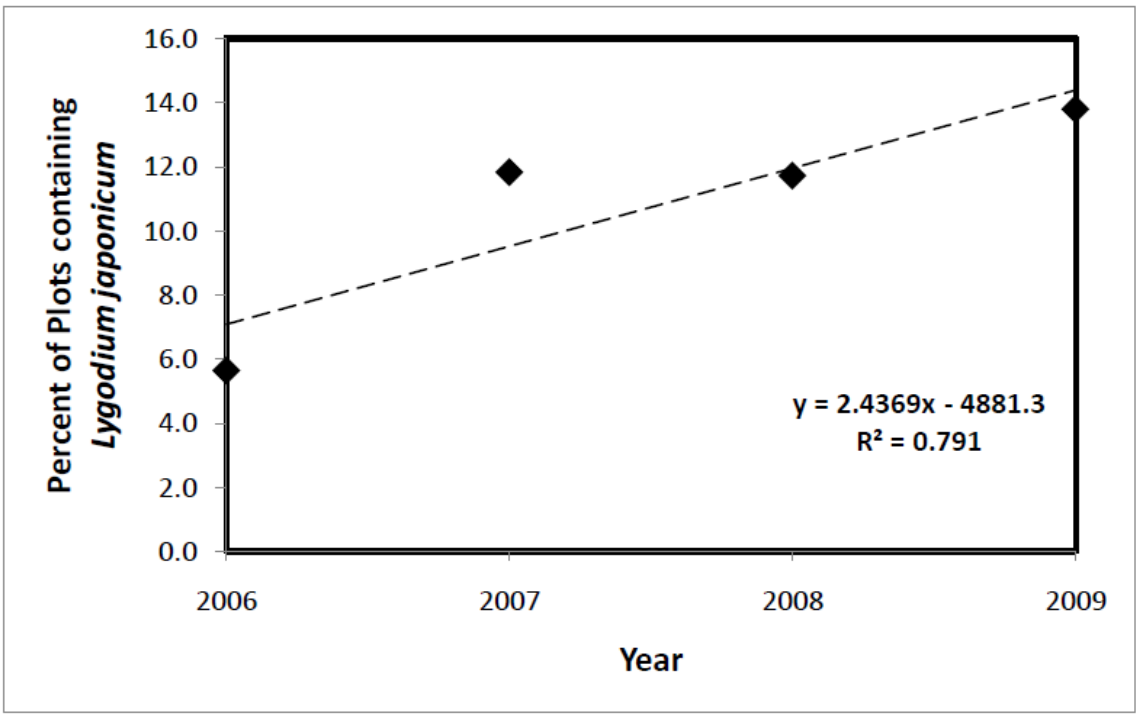

Figure 19. The occurrence of *Lygodium japonicum* in pine savanna groundcover at Camp Whispering Pines, Independence, Louisiana over a four year period.

The invasion by *L. japonicum* of pine savannas at Camp Whispering Pines may have been facilitated by past land uses and recent management practices. *Lygodium japonicum* may have invaded and established large populations in shrub thickets during the period of fire suppression, before frequent prescribed fires were restored to Camp Whispering Pines. Past open-range grazing also may have altered the groundcover in some unknown way (e.g., reduction of cover of bunch grasses) that now is facilitating invasion by *L. japonicum* in frequently burned areas without high densities of shrubs. Although almost twenty years of prescribed fires have reduced shrub thickets to remnant patches, *L. japonicum* rhizomes already established in the thickets survived prescribed fires that opened the thickets. Frequent prescribed fires during the transition from spring to summer, essential for restoration and management of diverse groundcover in mesic pine savannas like Camp Whispering Pines, do not appear to deter invasion of pine savannas by *L. japonicum*. If post-fire responses include increased spore production, propagules widely dispersed into surrounding herbaceous groundcover could constitute a “spore rain of terror”, to paraphrase Horvitz et al. (1998).

Based on the results of the two studies, we conclude that *L. japonicum* is invading the longleaf pine savanna at Camp Whispering Pines. Prevalence in shrub thickets suggests these areas act as a refuge for fern establishment and survival. Shrub thickets are microsites of increased soil moisture, provide ample structure for twining fronds, and tend to suppress fire within the localized area. Fronds twining up shrubs move any tissue consumable by fire away from the soil surface, which should reduce heating. This combination may be important for the protection of subterranean rhizomes of *L. japonicum* and further facilitate spread of established clones. Research is planned that includes examining how fire moving from open pine savanna into a shrub thicket influences characteristics of fires, as well as survival of

rhizomes and responses of fronds (re-emergence, spore production). We expect that *L. japonicum* will have increased survival and re-emergence within shrub thickets compared to more open herbaceous-dominated ground cover. We propose that management targeted at shrub thickets in mesic pine savannas should slow and reduce invasion of more open herbaceous groundcover by *L. japonicum.*

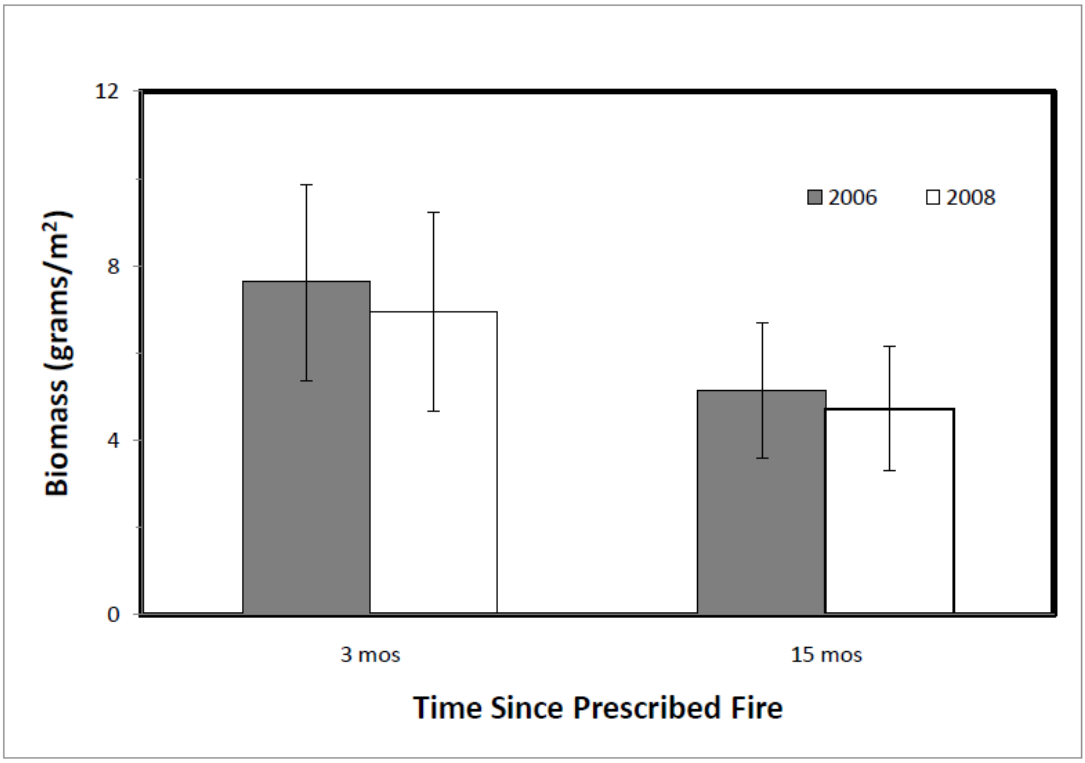

Figure 20. The mean biomass (above ground dry weight) of *L. japonicum* fronds in one square meter plots in shrub thickets at Camp Whispering Pines. Data were collected 3 and 15 months after prescribed fires in 2006 and 2008. Vertical bars denote standard errors.

Current prescribed fire techniques alone are not sufficient to limit or even slow invasion of pine savannas by *L. japonicum.* Additional methods need consideration. Herbicide application, coupled with fire, is being tested in the rhizosphere (Pieterson 2010, *personal communication*); such localized application should directly target the portion of the fern protected from fire with minimal effects on surrounding plants. Further study of herbicide treatment is necessary to determine potential negative consequences for native species within application areas.

Fire intensity may also play an important role in *L. japonicum* invasion. Fire intensity is a function of fuel type, amount, and how it is distributed within the longleaf pine savanna (Thaxton and Platt 2006). Differences between fine-fuels (i.e., pine needles) and woody fuels (i.e., shrubs) may influence persistence of fern rhizomes. Presently, an examination of how differences in fine-fuels influence frond recovery is being conducted that includes fire temperature measurements at and below the soil surface to determine whether soil heating potentially damages rhizomes of *L. japonicum*.

Lygodium japonicum is likely to compete with species indigenous to mesic pine savannas. Such species might include other rhizomatous ferns (e.g., *Pt**e**ridium aquilinum* (L.) Kuhn; *Botrychium biternatum* (Sav.) Underw.), as well as other lianas (e.g., Galactia volubilis (L.) Britton, *Gelsemium sempervirens* (L.) St. Hil.*, Smilax glauca* (Walter). *Pteridium aquilinum*, for example, exhibits similar growth characteristics to *L. japonicum* (Smith and Taylor 1986). Like *L. japonicum*, persistent subterranean rhizomes with nutrient reserves enable *P. aquilinum* to survive, re-grow and expand quickly after frequent fires (Schneider 2006). These similarities suggest post-fire competition between *L. japonicum* and native species with similar underground structures that readily survive and re-grow following frequent fires. As *L. japonicum* invades, occupation of space underground and use of

available nutrients should increase, potentially depressing native species, especially because the fern can also overtop them with its climbing growth form. Thus, studies are needed to examine if invasion by *L. japonicum* might compromise high biodiversity in the ground cover of mesic pine savannas.

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CHAPTER 5

CONCLUSIONS

SUMMARY OF IMPORTANT FINDINGS

This dissertation explored the potential effects of herbivores (rabbits and deer), avian granivores, and an invasive species (*Lygodium japonicum*) on pine savanna groundcover vegetation. It also evaluated how shrubs and fire influence pine savanna groundcover and how the groundcover is changing as habitat restoration continues at CWP.

Neither avian granivory nor simulated avian granivory (mechanical removal of *Panicum* and *Dichanthelium* grasses) affected the pine savanna groundcover vegetation. The seedbank of *Panicum* and *Dichanthelium* grasses was not explored, hence there may have been an extensive seed bank and removal of a few seeds by avian granivores may not have been sufficient to affect *Panicum* and *Dichanthelium* stem numbers. Although *Panicum* and *Dichanthelium* grasses made up approximately 20% of the stems in the study plots, they are short stature species, and hence their removal may have little influence on the rest of the plant community.

Plant stem numbers were stimulated by fire, and life cycle seems to predict how plants in the pine savanna groundcover respond to fire. The percentage increase in stem numbers in fire years was greater for annuals than for perennials. Bunchgrasses, which are long lived perennials, were the only group that did not show a significant increase in fire years. In addition, when the removal censuses of the *Panicum* and *Dichanthelium* grasses were compared to the stem count censuses, removal censuses showed greater percentage increases in fire years. Most of the *Panicum* and *Dichanthelium* stems in the removal census plots would have originated from seeds since most of the underground parts were destroyed when stems were removed. Thus fire may stimulate germination of seeds more than it stimulates vegetative growth from underground structures.

Winter herbivores reduced the number of stems of bunchgrasses. This occurred in both the shrub-savanna edge and open pine savanna, which suggests that use of shrubs as cover did not play a role in herbivore foraging behavior. The herbivores apparently selected mostly bunchgrasses; in plots exposed to winter herbivory there were no decreases in other components of the plant community.

Bunchgrasses showed a large increase over the five years of the study regardless of the effects of herbivores. This pattern was unique to bunchgrasses; no other components of the plant community showed a consistent increase through time. Because bunchgrasses are a dominant part of the groundcover vegetation in pine savannas, changes in their stem numbers potentially affect other species. Over the five years of the study there were no effects of herbivore exclusion and no consistent temporal change in species evenness, species richness, or stem numbers of non-bunchgrass species. Hence over the short time scale of this experiment, the increases in bunchgrasses had minimal effect on the rest of the plant community.

Shrubs contribute to the habitat heterogeneity of pine savanna groundcover. The two communities had different compositions of species even when woody species were removed from the analysis. The shrub-savanna edge had fewer bunchgrass stems and more annual stems than the open pine savanna. *Panicum verrucosum*, which has been suggested as important to the Henslow's Sparrow (*Ammodramus henslowii*) (Plentovich et al. 1999), was far more common on the shrub-savanna edge than in the open pine savanna.

Finally, this dissertation documents several aspects related to *L. japonicum* in pine savannas. First, *L. japonicum* is increasing in the groundcover at CWP. Hence, *L. japonicum* has potential to invade pine savannas and may pose a threat to the groundcover vegetation. Second, fire and mechanical removal have minimal effect in controlling *L. japonicum*. Some

evidence suggests that *L. japonicum* is stimulated by fire. Thus fire, which is an integral part of the management of pine savannas, is not going to control *L. japonicum.* Third, *L. japonicum* occured in far more sites along the shrub-savanna edge than in the open pine savanna. Thus, presence of shrubs in pine savannas may facilitate invasion by *L. japonicum.*

FUTURE DIRECTIONS

There are several aspects of herbivory in pine savannas that could be explored. It is of interest to determine which herbivores are causing the effects on the groundcover. Presumably rabbits and white-tailed deer both caused the decrease in bunchgrass stem numbers. By setting up the exclosures to exclude only deer, it would be possible to separate the effects that rabbits and deer have on the vegetation. In addition, only winter herbivory was studied. Winter herbivory affected only bunchgrasses. Herbivory during the summer growing season herbivores might affect other components of the plant community.

Further study of *Lygodium japonicum* might be of interest. For example, this study found that *L. japonicum* was far more common on the shrub-savanna edge and that fire may stimulate it. Measurement of fire temperatures, fuel amounts, and fuel combustion as fires burn into the patches of shrubs may lead to a better understanding of how fire affects *L. japonicum*. Determining how fire affects *L. japonicum* in the internal cores of patches of shrubs may help define the role that shrubs play in the invasion of pine savannas by *L. japonicum.*

Because CWP is undergoing habitat restoration, further study of the long-term changes in the pine savanna vegetation is of interest. Although the bunchgrasses increased in number through the duration of the study, there were no measureable effects on the pine savanna groundcover plant community. These changes, however, may take longer to become apparent. In addition, bunchgrass stem numbers were still increasing at the end of

this study. Because they are a dominant component of the pine savanna groundcover, it is of interest to determine whether they eventually reach a relatively stable number or whether they fluctuate with climatic or fire conditions.

The shrub-savanna edge is another area that is probably undergoing changes. Because of the habitat restoration at CWP, the shrubs are probably receding and the open pine savanna advancing. Seed bank studies might be useful in explaining why there are more annuals along the shrub-savanna edge than in the open pine savanna. For example, Maliakal et al. (2000) did seed bank studies on thirteen wiregrass flatwoods pine savanna sites in south-central Florida that had gone from one to more than thirty years since fire. They found a large disconnect between the plant community and the seed bank; 17 of the 27 species that occurred in the seed bank were not found growing in the groundcover vegetation. Determining the size of the seed bank of annuals in the open pine savanna versus the shrub-savanna edge may suggest whether annuals in pine savanna are able to persist in part because of seed banks.

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APPENDIX A

PLANT SPECIES IDENTIFIED IN RESEARCH PLOTS

Acanthaceae
Ruellia caroliniensis/pedunculata

Aceraceae
Acer rubrum

Anacardiaceae
Rhus copallinum
Toxicodendron radicans

Apiaceae
Eryngium integrifolium
Eryngium yuccifolium

Apocyanaceae
Trachelospermum difforme

Aquifoliaceae
Ilex glabra
Ilex vomitoria

Araliaceae
Aralia spinosa

Asteraceae
Ageratina altissima/aromatica
Ambrosia artemisiifolia
Boltonia diffusa
Chrysopsis mariana
Cirsium horridulum
Conoclinium coelestinum
Elephantopus tomentosus
Eupatorium album
Eupatorium capillifolium
Euphorbia corollata
Eupatorium perfoliatum
Eupatorium rotundifolium
Eupatorium semiserratum

Eurybia hemispherica
Helianthus angustifolius
Helenium flexuosum
Helianthus radula
Hieracium gronovii
Ionactis linariifolius
Lactuca graminifolia
Liatris sp.
Pityopsis graminifolia
Pluchea foetida
Pseudognaphalium obtusifolium
Rudbeckia hirta
Solidago odora
Solidago rugosa
Symphyotrichum adnatum
Symphyotrichum concolor
Symphyotrichum dumosum
Symphyotrichum patens
Symphyotrichum praealtum

Bignoniaceae
Campsis radicans

Campanulaceae
Lobelia brevifolia
Lobelia puberula

Caprifoliaceae
Lonicera japonica

Cistaceae
Lechea minor

Clusiaceae
Hypericum crux-andreae
Hypericum hypericoides
Hypericum setosum

Cornaceae
Nyssa sylvatica

Cyperaceae

Fimbristylis puberula
Rhynchospora glomerata
Rhynchospora rariflora
Scleria ciliata
Scleria pauciflora

Dennstaedtiaceae
Pteridium aquilinum

Droseraceae
Drosera brevifolia

Ebenaceae
Diospyros virginiana

Ericaceae
Gaylussacia dumosa
Vaccinium darrowii
Vaccinium elliottii
Vaccinium arboreum
Vaccinium stamineum

Euphorbiaceae
Acalypha gracilens
Phyllanthus caroliniensis
Tragia smallii
Triadica sebifera

Fabaceae
Baptisia bracteata
Centrosema virginianum
Chamaecrista nictitans
Clitoria mariana
Crotalaria rotundifolia
Desmodium ciliare
Desmodium lineatum
Desmodium tenuifolium
Galactia erecta
Galactia volubilis
Lespedeza capitata
Lespedeza repens
Rhynchosia reniformis

Strophostyles umbellata
Stylosanthes biflora
Tephrosia florida
Tephrosia spicata
Tephrosia onobrychoides/hispidula

Fagaceae
Quercus falcata
Quercus nigra
Quercus virginiana
Hamamelidaceae
Liquidambar styraciflua

Lamiaceae
Hyptis alata
Pycnanthemum albescens
Scutellaria integrifolia
Trichostema sp.

Lauraceae
Sassafras albidum

Liliaceae
Aletris lutea
Hypoxis juncea

Linaceae
Linum medium

Loganiaceae
Gelsemium sempervirens
Mitreola sessilifolia

Malvaceae
Hibiscus aculeatus

Melastomataceae
Rhexia alifanus
Rhexia mariana

Myricaceae
Morella cerifera

Oleaceae
Ligustrum sinense

Onagraceae
Ludwigia hirtella

Oxalidaceae
Oxalis corniculata

Pinaceae
Pinus palustris
Pinus taeda

Poaceae
Agrostis sp.
Andropogon gyrans
Aristida purpurascens
Chasmanthium laxum
Ctenium aromaticum
Dichanthelium aciculare
Dichanthelium acuminatum
Dichanthelium dichotomum
Dichanthelium ensifolium
Dichanthelium laxiflorum
Dichanthelium ovale
Dichanthelium scoparium
Dichanthelium sphaerocarpon
Dichanthelium strigosum
Gymnopogon brevifolius
Panicum anceps
Panicum verrucosum
Panicum virgatum
Paspalum floridanum
Paspalum notatum
Schizachyrium scoparium
Schizachyrium tenerum

Polemoniaceae
Phlox divaricata

Polygalaceae
Polygala nana

Rosaceae
Malus angustifolia
Prunus serotina
Rubus cuneifolius
Rubus trivialis

Rubiaceae
Diodia teres
Diodia virginiana
Houstonia procumbens
Mitchella repens

Scrophulariaceae
Gratiola pilosa
Mecardonia acuminata

Smilacaceae
Smilax bona-nox
Smilax glauca
Smilax rotundifolia

Solanaceae
Physalis virginiana
Solanum carolinense

Verbenaceae
Callicarpa americana

Violaceae
Viola ×primulifolia
Viola septemloba

Vitaceae
Parthenocissus quinquefolia

APPENDIX B

BIRD SPECIES FROM WINTER CENSUS POINT COUNTS

Aix sponsa
Baeolophus bicolor
Bombycilla garrulus
Cardinalis cardinalis
Colaptes auratus
Cyanocitta cristata
Dendroica pinus
Dryocopus pileatus
Junco hyemalis
Melanerpes carolinus
Melanerpes erythrocephalus
Melospiza georgiana
Mimus polyglottis
Molothrus ater
Passer domesticus
Picoides pubescens
Pipilo erythrophthalmus
Poecile carolinensis
Polioptila caerulea
Sayornis phoebe
Sialia sialis
Sitta pusilla
Sphyrapicus varius
Spinus tristis
Spizella passerine
Thryothorus ludovicianus
Troglodytes aedon
Zanaida macroura
Zonotrichia albicollis
Turdus migratorius

APPENDIX C

STEM COUNT DATA FROM PLANT CENSUS

site	Treatment	Year	*Dichanthelium aciculare*	*Dichanthelium acuminatum*	*Dichanthelium ensifolium*	*Dichanthelium laxiflorum*	Dichanthelium ovale	*Dichanthelium scoparium*	*Dichanthelium sphaerocarpon*	*Dichanthelium strigosum*	*Dichanthelium dichotomum*	*Panicum anceps*	*Panicum verrucosum*	*Panicum virgatum*	*Dichanthelium* seedlings	*Fimbristylis puberula*	*Rhynchospora glomerata*	*Rhynchospora rariflora*	*Scleria* sp	*Scleria ciliata*	*Scleria pauciflora*
1	Control	2004	0	0	0	0	22	0	0	18	1	0	63	0	2	0	4	0	0	0	27
1	Control	2005	0	0	0	0	14	0	0	13	0	0	192	0	0	0	7	0	0	0	12
1	Control	2006	0	0	4	2	46	0	1	19	0	0	30	0	0	0	6	0	0	0	25
1	Control	2007	0	0	0	0	73	0	0	15	0	0	436	0	0	0	6	0	0	0	5
1	Control	2008	0	0	3	3	84	0	0	42	0	0	20	0	0	0	11	0	0	0	12
1	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2006	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
1	Removal	2007	0	0	1	1	6	0	1	7	0	0	222	0	0	0	0	0	0	0	1
1	Removal	2008	0	0	2	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
1	Cov Cont	2004	0	0	0	0	30	0	6	9	0	0	73	0	4	0	0	0	0	10	10
1	Cov Cont	2005	0	0	0	0	22	0	6	13	0	0	413	0	0	0	0	0	0	20	37
1	Cov Cont	2006	0	0	0	0	43	0	15	2	0	0	125	0	0	0	0	0	0	24	2
1	Cov Cont	2007	0	0	2	1	58	0	4	9	1	0	655	0	0	0	0	0	0	9	0
1	Cov Cont	2008	0	0	5	2	46	0	8	8	0	0	31	0	0	0	0	0	0	10	0
1	Far Cont	2005	1	0	0	0	4	4	0	0	0	0	8	0	0	0	0	0	0	0	0
1	Far Cont	2006	0	0	0	0	11	0	4	0	0	0	1	0	0	0	0	0	0	0	0
1	Far Cont	2007	0	0	0	0	63	1	4	70	0	0	51	0	0	0	0	17	0	0	0
1	Far Cont	2008	2	1	0	7	45	11	7	0	0	0	0	0	0	0	0	0	0	0	2
2	Cov Cont	2004	0	1	0	0	18	0	4	90	0	1	49	0	0	0	0	0	0	0	0
2	Cov Cont	2005	7	5	10	0	30	0	0	102	0	8	433	0	0	0	0	0	0	9	0
2	Cov Cont	2006	4	4	15	0	17	0	1	129	0	1	19	0	0	0	0	0	0	11	0
2	Cov Cont	2007	6	11	95	0	25	0	1	193	0	3	323	0	0	0	0	0	0	13	0
2	Cov Cont	2008	6	5	37	0	22	0	0	155	0	2	35	0	0	0	0	0	0	22	3
2	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	28
2	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	12
2	Removal	2006	0	0	3	5	2	0	1	2	0	0	0	0	0	0	9	0	0	0	9
2	Removal	2007	0	0	0	9	24	0	2	0	0	0	116	0	0	0	7	0	0	0	32
2	Removal	2008	0	0	1	0	4	0	1	0	0	0	4	0	0	0	7	0	0	0	13
2	Control	2004	36	0	0	0	16	0	0	1	0	0	140	0	0	0	1	0	0	14	4
2	Control	2005	0	2	0	0	10	0	0	0	0	1	230	0	0	0	3	0	0	18	14
2	Control	2006	8	0	0	0	27	0	0	0	0	0	89	0	0	0	3	0	0	29	15
2	Control	2007	18	0	0	0	12	0	0	0	0	0	214	0	0	0	4	0	0	29	12
2	Control	2008	25	0	0	0	42	0	0	1	0	0	82	0	0	0	1	0	0	25	6
3	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
3	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2006	0	0	4	0	0	0	0	6	0	0	1	0	0	0	3	0	0	0	0
3	Removal	2007	0	0	0	0	0	0	0	7	0	0	1	0	0	0	4	7	0	0	0
3	Removal	2008	0	1	34	0	7	0	0	34	0	0	3	0	0	0	5	13	0	0	0
3	Control	2004	0	27	0	0	23	0	0	0	0	0	18	0	309	0	0	0	0	0	0
3	Control	2005	0	4	111	0	34	0	5	13	0	0	3	0	0	0	0	0	0	0	0
3	Control	2006	0	0	49	0	10	0	2	15	0	0	3	0	0	0	0	0	0	0	2

site	Treatment	Year	Cyperaceae sp	Cyperaceae (same within site)	*Acalypha gracilens*	*Ageratina altissima/aromatica*	*Aletris lutea*	*Ambrosia artemisiifolia*	*Symphyotrichum adnatum*	*Symphyotrichum concolor*	*Symphyotrichum dumosum*	*Eurybia hemispherica*	*Symphyotrichum patens*	*Symphyotrichum praealtum*	*Ionactis linariifolius*	*Boltonia diffusa*	*Chrysopsis mariana*	*Cirsium horridulum*	*Conoclinium coelestinum*	*Diodia teres*	Diodia virginiana
1	Control	2004	0	0	0	0	0	0	2	0	11	0	0	0	0	0	4	0	0	0	0
1	Control	2005	0	0	15	1	0	0	1	0	38	0	0	0	0	0	6	0	0	0	0
1	Control	2006	0	0	0	1	0	0	2	0	32	0	0	0	0	0	7	0	0	0	0
1	Control	2007	0	0	17	1	0	0	2	0	38	0	0	0	0	0	4	0	0	0	0
1	Control	2008	0	0	0	1	0	0	2	0	50	0	0	0	0	0	6	0	0	0	0
1	Removal	2004	0	0	0	0	0	0	16	0	13	0	0	0	0	1	1	0	0	0	0
1	Removal	2005	0	0	19	0	0	0	18	0	23	0	0	0	0	1	0	0	1	0	0
1	Removal	2006	0	0	4	0	0	0	18	0	23	0	0	0	0	1	1	0	2	0	0
1	Removal	2007	0	0	27	0	0	1	29	0	25	0	0	0	0	2	0	0	0	0	0
1	Removal	2008	0	0	4	0	0	0	32	0	40	0	0	0	0	0	1	0	0	0	0
1	Cov Cont	2004	0	0	0	0	0	3	0	0	9	0	0	0	0	0	0	0	0	0	2
1	Cov Cont	2005	0	0	14	0	0	1	0	0	13	0	0	0	0	0	0	0	0	0	1
1	Cov Cont	2006	0	0	0	3	1	1	0	0	14	0	0	0	0	0	0	0	0	0	2
1	Cov Cont	2007	0	0	21	0	0	5	0	0	16	0	0	0	0	0	0	0	0	0	4
1	Cov Cont	2008	0	0	0	10	1	1	0	0	27	0	0	0	0	0	0	0	0	0	3
1	Far Cont	2005	0	0	1	0	0	0	0	0	1	0	0	16	0	9	0	0	0	2	0
1	Far Cont	2006	0	0	1	0	0	0	0	0	0	0	0	10	0	11	0	0	0	3	0
1	Far Cont	2007	0	0	13	0	0	8	0	0	0	0	0	9	0	14	0	0	0	5	0
1	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	0	0	0
2	Cov Cont	2004	0	0	0	0	0	0	0	0	34	0	0	0	0	0	0	0	0	3	0
2	Cov Cont	2005	0	0	17	0	0	0	2	0	38	0	0	0	0	2	0	0	0	21	0
2	Cov Cont	2006	0	0	4	0	0	0	3	0	44	0	0	0	0	2	0	0	0	3	0
2	Cov Cont	2007	0	0	35	0	0	0	11	0	45	0	0	0	0	7	0	0	0	2	0
2	Cov Cont	2008	0	0	4	0	0	0	4	0	31	0	0	0	0	6	0	0	0	1	0
2	Removal	2004	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
2	Removal	2005	0	0	46	3	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
2	Removal	2006	0	0	2	14	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
2	Removal	2007	0	0	41	6	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0
2	Removal	2008	0	0	2	7	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
2	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2005	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2006	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
2	Control	2007	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2008	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2004	0	0	9	0	0	0	7	0	5	0	0	0	0	0	0	0	0	0	0
3	Removal	2005	0	0	2	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0
3	Removal	2006	0	0	3	0	0	0	5	0	4	0	0	0	0	0	0	0	0	0	0
3	Removal	2007	0	0	2	0	0	0	3	0	3	0	0	0	0	0	0	0	2	0	0
3	Removal	2008	0	0	8	0	0	0	9	0	9	0	0	0	0	0	0	0	0	0	0
3	Control	2004	0	0	7	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0
3	Control	2005	0	0	0	0	0	0	4	0	3	0	0	0	0	0	0	0	0	0	0
3	Control	2006	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Drosera brevifolia*	*Elephantopus tomentosus*	*Eryngium integrifolium*	*Eryngium yuccifolium*	*Eupatorium album*	*Eupatorium capillifolium*	*Euphorbia corollata*	*Eupatorium perfoliatum*	*Eupatorium rotundifolium*	*Eupatorium semiserratum*	*Gelsemium sempervirens*	*Pseudognaphalium obtusifolium*	*Gratiola pilosa*	*Helianthus angustifolius*	*Helenium flexuosum*	*Houstonia procumbens*	*Helianthus radula*	*Hibiscus aculeatus*	*Hieracium gronovii*
1	Control	2004	0	0	0	0	0	0	0	0	5	0	0	0	0	35	0	0	0	0	0
1	Control	2005	0	0	0	0	0	0	0	0	13	0	0	0	0	33	0	0	0	0	0
1	Control	2006	0	0	0	0	0	0	0	0	5	0	0	0	0	25	0	0	0	0	0
1	Control	2007	0	0	0	0	0	0	0	0	29	0	0	0	0	56	0	0	0	0	0
1	Control	2008	0	0	0	0	0	0	0	0	12	0	0	0	0	49	0	0	0	0	0
1	Removal	2004	0	0	0	0	0	0	0	0	1	0	0	0	0	12	0	0	0	0	0
1	Removal	2005	0	0	0	0	0	0	0	0	7	0	0	0	0	21	0	0	0	0	0
1	Removal	2006	0	0	0	0	0	0	0	0	4	0	0	0	0	27	0	0	0	0	0
1	Removal	2007	0	0	0	0	0	0	0	0	21	0	0	0	0	29	0	0	0	0	0
1	Removal	2008	0	0	0	0	0	0	0	0	4	0	0	0	0	33	0	0	0	0	0
1	Cov Cont	2004	0	77	0	0	0	0	0	0	7	0	0	0	0	8	0	0	0	0	0
1	Cov Cont	2005	0	9	0	0	0	0	0	0	8	0	0	0	0	5	0	0	0	0	0
1	Cov Cont	2006	0	22	0	0	0	0	0	0	5	0	0	0	0	5	0	0	0	0	0
1	Cov Cont	2007	0	1	0	0	0	0	0	0	14	0	0	0	0	8	0	0	0	0	0
1	Cov Cont	2008	0	1	0	0	0	0	0	0	9	0	0	0	0	13	0	0	0	0	0
1	Far Cont	2005	0	0	0	0	0	0	0	2	0	0	0	0	0	35	0	0	0	0	0
1	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	46	0	26	0	0	0	0	0
1	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	47	0	0	0	0	0
1	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0
2	Cov Cont	2004	9	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2	Cov Cont	2005	0	0	0	0	1	0	0	0	1	0	0	0	0	9	0	0	0	0	0
2	Cov Cont	2006	0	0	0	0	1	0	0	0	6	0	0	0	0	15	0	0	0	0	0
2	Cov Cont	2007	0	0	0	0	2	0	0	0	6	0	0	0	0	21	0	0	0	0	0
2	Cov Cont	2008	0	0	0	0	0	0	0	0	8	0	0	0	0	28	0	0	0	0	0
2	Removal	2004	0	9	0	0	0	0	0	0	0	0	0	0	0	38	0	0	0	0	0
2	Removal	2005	0	9	0	0	0	0	1	0	2	0	0	0	0	133	0	0	0	0	0
2	Removal	2006	0	10	0	0	0	0	0	0	0	0	0	0	0	99	0	0	0	0	0
2	Removal	2007	0	8	0	0	0	0	0	0	4	0	0	0	0	68	0	0	0	0	0
2	Removal	2008	0	24	0	0	0	0	1	0	2	0	0	0	0	58	0	0	0	0	0
2	Control	2004	0	0	0	0	0	0	0	10	0	0	0	0	0	5	0	0	0	0	0
2	Control	2005	0	0	0	0	0	0	0	4	0	0	0	0	0	27	0	0	0	0	0
2	Control	2006	0	0	0	0	0	0	0	2	0	0	0	0	0	23	0	0	0	0	0
2	Control	2007	0	0	0	0	0	0	0	2	0	0	0	0	0	43	0	0	0	0	0
2	Control	2008	0	0	0	0	0	0	0	1	0	0	0	0	0	42	0	0	0	0	0
3	Removal	2004	26	0	0	0	0	0	0	0	4	0	0	0	0	2	0	0	0	0	0
3	Removal	2005	0	0	0	0	0	1	1	0	2	0	0	2	0	1	0	0	0	0	0
3	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2007	0	2	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	0	0
3	Removal	2008	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0
3	Control	2004	0	0	0	0	2	0	0	0	1	0	10	0	0	33	0	0	0	0	0
3	Control	2005	0	0	0	0	2	0	0	0	1	0	23	0	0	42	0	0	0	0	0
3	Control	2006	0	0	0	0	2	0	0	0	1	0	13	0	0	21	0	0	0	0	0

site	Treatment	Year	*Hyptis alata*	*Hypericum crux-andreae*	*Hypericum hypericoides*	*Hypoxis juncea*	*Hypericum setosum*	*Lactuca graminifolia*	*Lechea minor*	*Liatris* sp	*Linum medium*	*Lobelia brevifolia*	*Lobelia puberula*	*Ludwigia hirtella*	*Mecardonia acuminata*	*Mitchella repens*	*Mitreola sessilifolia*	Unknown Forb Species A	*Oxalis corniculata*	*Phyllanthus caroliniensis*	*Phlox divaricata*
1	Control	2004	10	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	14	410	0
1	Control	2005	6	0	0	11	3	0	0	0	0	0	0	0	0	0	0	0	7	1755	0
1	Control	2006	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	9	73	0
1	Control	2007	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	16	1922	0
1	Control	2008	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	6	183	0
1	Removal	2004	52	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	10	29	0
1	Removal	2005	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	165	0
1	Removal	2006	21	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	7	21	0
1	Removal	2007	46	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	13	189	0
1	Removal	2008	35	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	9	0
1	Cov Cont	2004	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210	0
1	Cov Cont	2005	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	821	0
1	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	0
1	Cov Cont	2007	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	386	0
1	Cov Cont	2008	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
1	Far Cont	2005	0	0	0	0	7	0	0	0	0	0	0	3	0	0	0	0	0	750	0
1	Far Cont	2006	0	2	0	0	2	0	0	0	0	0	1	1	0	0	0	0	0	37	0
1	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	1399	0
1	Far Cont	2008	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0
2	Cov Cont	2004	0	0	0	0	1	0	0	0	0	0	0	0	1	0	27	0	0	62	0
2	Cov Cont	2005	1	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	164	0
2	Cov Cont	2006	1	0	0	0	2	0	0	0	0	0	3	1	0	0	13	0	0	41	0
2	Cov Cont	2007	0	0	0	0	5	0	0	0	0	0	0	0	0	0	8	0	0	264	0
2	Cov Cont	2008	0	0	0	0	5	0	0	0	0	0	0	0	0	0	13	0	0	114	0
2	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	850	0
2	Removal	2005	0	0	0	5	0	0	0	0	0	0	0	0	0	1	0	0	0	1565	0
2	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	149	0
2	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	887	0
2	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	1	687	0
2	Control	2004	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	366	0
2	Control	2005	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	6634	0
2	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	113	0
2	Control	2007	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8	2119	0
2	Control	2008	0	1	0	0	0	0	1	0	0	0	0	2	0	0	0	0	6	529	0
3	Removal	2004	0	1	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	11	0
3	Removal	2005	0	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	35	0
3	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2007	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2008	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0
3	Control	2004	0	4	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	0
3	Control	2005	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
3	Control	2006	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Physalis virginiana*	*Pityopsis graminifolia*	*Pluchea foetida*	*Polygala nana*	*Pteridium aquilinum*	*Pycnanthemum albescens*	*Rhexia alifanus*	*Rhexia mariana*	*Ruellia caroliniensis /pedunculata*	*Rudbeckia hirta*	*Rubus trivialis*	*Scutellaria integrifolia*	*Solanum carolinense*	*Solidago odora*	*Solidago rugosa*	*Trachelospermum difforme*	*Trichostema* sp	*Tragia smallii*	Unknown Forb Species B
1	Control	2004	0	0	0	0	0	0	0	0	0	0	24	6	0	0	12	0	0	0	0
1	Control	2005	0	2	0	0	0	0	0	0	0	0	29	4	0	2	7	0	0	0	0
1	Control	2006	0	2	0	0	0	0	0	0	0	0	19	4	0	2	6	0	0	0	0
1	Control	2007	0	3	0	0	0	0	0	0	0	0	26	7	0	4	1	0	0	0	0
1	Control	2008	0	4	0	0	0	0	0	0	0	0	16	6	0	2	3	0	0	0	0
1	Removal	2004	0	0	0	0	0	0	0	0	0	3	32	0	0	0	14	0	0	0	0
1	Removal	2005	0	0	0	0	0	0	0	0	1	1	37	0	0	0	35	0	0	0	0
1	Removal	2006	0	0	0	0	0	0	0	0	3	1	22	0	0	0	25	0	0	0	0
1	Removal	2007	0	0	0	0	0	0	0	0	1	0	34	0	0	0	10	0	0	0	0
1	Removal	2008	0	1	0	0	0	0	0	0	1	0	30	2	0	0	12	0	0	0	0
1	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	22	0	0	92	15	0	0	0	0
1	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	30	0	0	9	3	0	0	0	0
1	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	25	0	0	9	1	0	0	0	0
1	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	23	0	0	8	0	0	0	0	0
1	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	22	0	0	7	0	0	0	0	0
1	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0
1	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	6	0	0	1	0	0	0	0	0
1	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	8	0	0	0	4	0	0	0	0
1	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
2	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	8	3	0	3	8	0	0	2	0
2	Cov Cont	2005	0	8	0	0	0	0	0	0	1	0	8	7	0	3	20	0	0	3	0
2	Cov Cont	2006	0	9	0	0	0	0	0	0	0	0	11	5	0	7	23	0	0	2	0
2	Cov Cont	2007	0	3	0	0	0	0	0	0	1	0	8	8	0	2	13	0	0	2	0
2	Cov Cont	2008	0	12	0	0	0	0	0	0	1	0	7	11	0	2	17	0	0	4	0
2	Removal	2004	0	0	0	0	0	0	0	0	0	0	2	0	0	4	1	0	0	2	0
2	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	0
2	Removal	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	4	1	0	0	1	0
2	Removal	2007	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3	0	0	1	0
2	Removal	2008	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4	0	0	1	0
2	Control	2004	0	0	0	0	0	0	0	0	0	0	9	0	0	0	4	0	0	0	0
2	Control	2005	0	0	0	0	0	0	0	0	0	0	5	0	0	0	7	0	0	0	0
2	Control	2006	0	0	0	0	0	0	0	0	0	0	8	0	0	0	5	0	0	0	0
2	Control	2007	0	0	0	0	0	0	0	0	0	0	6	1	0	0	6	0	0	0	0
2	Control	2008	0	0	0	0	0	0	0	0	0	0	5	4	0	0	17	0	0	0	0
3	Removal	2004	0	0	0	4	0	0	0	4	0	0	4	0	0	3	2	0	0	0	0
3	Removal	2005	0	0	0	2	0	0	0	1	0	0	0	2	0	3	1	0	0	0	0
3	Removal	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
3	Removal	2007	0	0	0	6	0	0	0	1	0	0	0	4	0	1	1	0	0	0	0
3	Removal	2008	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0
3	Control	2004	0	7	0	2	0	0	0	0	0	0	7	0	0	1	0	0	0	0	0
3	Control	2005	0	5	0	0	0	0	0	0	0	0	2	0	0	3	0	0	0	0	0
3	Control	2006	0	5	0	0	0	0	0	0	0	0	1	0	0	2	0	1	0	0	0

site	Treatment	Year	Unknown Forb Species C	Unknown Forb Species D	Unknown Forb Species E	Unknown Forb Species F	Unknown Forb Species G	Unknown Forb Species H	Unidentified Forbs	Unknown Forb Species I	Unknown Forb Species J	Unknown Forb Species K	Unidentified basal rosette	*Viola ×primulifolia*	*Viola septemloba*	*Andropogon gyrans*	*Aristida purpurascens*	*Chasmanthium laxum*	*Ctenium aromaticum*	*Agrostis* sp	*Gymnopogon brevifolius*
1	Control	2004	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
1	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
1	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Control	2007	0	0	0	0	0	0	0	1	0	0	0	0	0	0	9	0	0	0	0
1	Control	2008	0	0	0	0	0	0	0	0	2	0	0	0	0	1	14	0	0	0	0
1	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0
1	Removal	2008	0	0	0	0	0	0	0	0	2	0	0	0	0	18	3	0	0	0	0
1	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
1	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2006	0	0	0	0	0	0	1	0	0	0	2	0	0	0	30	0	0	0	0
1	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0
1	Far Cont	2006	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0
1	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	6	0	0	16	0	0	0	0	4
2	Cov Cont	2004	0	0	0	0	0	0	10	0	0	0	0	0	0	0	12	0	0	0	0
2	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0
2	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0
2	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0
2	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	2	53	0	0	0	0
2	Removal	2004	0	0	0	0	0	0	4	0	0	0	0	3	0	0	0	0	0	0	0
2	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0
2	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0
2	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0
2	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	7	0	1	0	0	0	0	0
2	Control	2004	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0
2	Control	2007	0	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0
2	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0
3	Removal	2004	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2007	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
3	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Control	2004	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
3	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Paspalum floridanum*	*Paspalum notatum*	*Schizachyrium scoparium*	*Schizachyrium tenerum*	Unknown Grass A	Unknown Grass B	Unknown Grass C	Unknown Grass D	Unknown Grass E	Unknown Grass F	Unidentified Poaceae	Poaceae (same within site)	Unknown Grass G	*Baptisia bracteata*	*Centrosema virginianum*	*Chamaecrista nictitans*	*Clitoria mariana*	*Crotalaria rotundifolia*	*Desmodium ciliare*
1	Control	2004	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Control	2005	0	0	21	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Control	2006	0	0	25	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Control	2007	0	0	38	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Control	2008	0	0	82	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2004	0	0	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2005	0	0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2006	0	0	147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2007	0	0	153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2008	0	0	267	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2004	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
1	Cov Cont	2005	0	0	22	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2006	0	0	31	89	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
1	Cov Cont	2007	0	0	56	188	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2008	0	0	96	183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2005	1	26	60	0	0	0	0	0	0	0	0	0	114	0	0	0	0	0	0
1	Far Cont	2006	0	5	62	0	0	0	0	0	0	0	0	0	72	0	0	0	0	0	0
1	Far Cont	2007	0	12	20	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0
1	Far Cont	2008	0	7	12	0	0	0	0	0	0	0	0	0	62	0	0	0	0	0	0
2	Cov Cont	2004	0	0	72	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2005	0	0	60	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2006	0	0	56	165	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0
2	Cov Cont	2007	0	0	32	422	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2008	0	0	68	428	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Removal	2004	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
2	Removal	2005	0	0	28	38	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
2	Removal	2006	0	0	38	67	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0
2	Removal	2007	0	0	75	174	0	0	0	0	0	0	0	8	0	0	0	0	7	0	0
2	Removal	2008	0	0	156	212	0	0	0	0	0	0	0	8	0	0	0	0	9	0	0
2	Control	2004	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2005	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
2	Control	2006	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
2	Control	2007	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
2	Control	2008	0	0	77	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
3	Removal	2004	0	0	227	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2005	0	0	257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
3	Removal	2006	0	0	205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2007	0	0	214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2008	0	0	321	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Control	2004	0	0	108	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Control	2005	0	0	132	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Control	2006	0	0	129	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Desmodium lineatum*	*Desmodium tenuifolium*	*Galactia erecta*	*Galactia volubilis*	*Lespedeza capitata*	*Lespedeza repens*	*Rhynchosia reniformis*	Unidentified Fabaceae seedlings	*Stylosanthes biflora*	*Strophostyles umbellata*	*Tephrosia florida*	*Tephrosia spicata*	*Tephrosia onobrychoides/hispidula*	Fabaceae sp	Fabaceae vine	Fabaceae	*Pinus palustris*	*Pinus taeda*	*Acer rubrum*
1	Control	2004	0	0	0	0	0	5	0	0	1	0	0	3	0	0	0	0	3	1	0
1	Control	2005	0	0	0	0	0	9	0	0	7	0	0	7	0	0	0	0	0	0	0
1	Control	2006	0	0	0	0	0	7	0	0	4	0	0	7	0	0	0	0	0	0	0
1	Control	2007	0	0	0	0	0	7	0	0	4	0	0	8	0	0	0	0	0	0	0
1	Control	2008	0	0	0	0	0	10	0	0	4	0	0	10	0	0	0	0	0	0	0
1	Removal	2004	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	0
1	Removal	2005	0	0	0	0	0	0	0	0	2	0	0	8	0	0	0	0	0	0	0
1	Removal	2006	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0	0	0	0	0
1	Removal	2007	0	0	0	0	0	0	0	0	2	0	0	7	0	0	0	0	0	0	0
1	Removal	2008	0	0	0	0	0	0	0	0	2	0	0	5	0	0	0	0	0	0	0
1	Cov Cont	2004	0	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	7	0	0
1	Cov Cont	2005	0	0	0	0	0	0	0	0	13	0	0	3	0	0	0	0	0	0	0
1	Cov Cont	2006	0	0	0	0	0	0	0	0	10	0	0	3	0	0	0	0	0	0	0
1	Cov Cont	2007	0	0	0	0	0	0	0	0	23	0	0	7	0	0	0	0	0	0	0
1	Cov Cont	2008	0	0	0	0	0	0	0	0	20	0	0	4	0	0	0	0	0	0	0
1	Far Cont	2005	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
1	Far Cont	2006	0	0	0	6	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
1	Far Cont	2007	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1	Far Cont	2008	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
2	Cov Cont	2004	0	0	0	0	0	0	0	0	39	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2005	0	0	0	0	0	0	0	0	88	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2006	0	0	0	0	0	0	0	0	54	0	0	0	0	0	0	0	1	0	0
2	Cov Cont	2007	0	0	0	0	0	0	0	0	112	0	2	0	0	0	0	0	0	0	0
2	Cov Cont	2008	0	0	0	0	0	0	0	0	54	0	2	0	0	0	0	0	0	0	0
2	Removal	2004	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	7	0	0
2	Removal	2005	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	3	3	0	0
2	Removal	2006	0	0	0	0	0	0	0	0	11	0	2	0	0	0	0	0	2	0	0
2	Removal	2007	0	0	0	0	0	0	0	0	13	0	5	0	0	0	0	1	0	0	0
2	Removal	2008	0	0	0	0	0	0	0	0	10	0	5	0	0	0	0	1	0	0	0
2	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0
2	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2008	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
3	Removal	2004	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0
3	Removal	2005	0	0	0	0	0	0	0	0	42	0	0	0	0	0	0	0	1	3	0
3	Removal	2006	0	0	0	0	0	0	0	0	69	0	1	0	0	0	0	0	0	0	0
3	Removal	2007	0	0	0	0	0	1	0	0	24	0	0	0	0	0	0	0	1	6	0
3	Removal	2008	0	0	0	0	0	1	0	0	76	0	4	0	0	0	0	0	1	0	0
3	Control	2004	0	0	0	0	0	0	0	0	63	0	1	0	0	1	0	0	0	0	0
3	Control	2005	0	0	0	0	0	0	0	0	60	0	1	0	0	0	0	0	0	3	0
3	Control	2006	0	0	0	0	0	0	0	0	121	0	2	0	0	0	0	0	0	0	0

site	Treatment	Year	*Aralia spinosa*	*Callicarpa americana*	*Campsis radicans*	*Diospyros virginiana*	*Gaylussacia dumosa*	*Ilex glabra*	*Ilex vomitoria*	*Ligustrum sinense*	*Liquidambar styraciflua*	*Lonicera japonica*	*Malus angustifolia*	*Morella cerifera*	*Nyssa sylvatica*	*Parthenocissus quinquefolia*	*Prunus serotina*	*Quercus falcata*	*Quercus nigra*	*Quercus virginiana*	*Rhus copallinum*
1	Control	2004	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	0
1	Control	2005	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	7	0	0	0
1	Control	2006	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	7	0	0	0
1	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0
1	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0
1	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1	Cov Cont	2008	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
1	Far Cont	2005	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2006	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2007	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2008	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2004	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
2	Cov Cont	2005	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
2	Cov Cont	2006	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	4
2	Cov Cont	2007	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4
2	Cov Cont	2008	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	4
2	Removal	2004	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
2	Removal	2005	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
2	Removal	2006	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	3
2	Removal	2007	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5
2	Removal	2008	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	3
2	Control	2004	0	0	0	0	0	0	6	1	0	0	0	0	0	0	0	0	0	0	0
2	Control	2005	0	0	0	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0	0
2	Control	2006	0	0	0	0	0	0	11	2	0	0	0	0	0	0	0	0	0	0	0
2	Control	2007	0	0	0	0	0	0	15	1	0	0	0	0	0	0	0	0	0	0	0
2	Control	2008	0	0	0	0	0	0	17	4	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
3	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Control	2004	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
3	Control	2005	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1
3	Control	2006	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2

site	Treatment	Year	*Rubus cuneifolius*	*Sassafras albidum*	*Triadica sebifera*	*Smilax bona-nox*	*Smilax glauca*	*Smilax rotundifolia*	*Toxicodendron radicans*	Unidentified *Vaccineum*	*Vaccinium darrowii*	*Vaccinium elliottii*	*Vaccinium arboreum*	*Vaccinium stamineum*
1	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
1	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0
1	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0
1	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0
1	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
1	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2004	0	1	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
1	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2005	3	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2006	2	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2007	1	0	0	0	0	0	0	0	0	0	0	0
1	Far Cont	2008	1	0	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
2	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
2	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0
2	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0
2	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
2	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
2	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0
2	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
3	Removal	2004	0	0	0	0	6	0	0	0	0	3	0	0
3	Removal	2005	0	0	0	0	7	0	0	0	0	3	0	0
3	Removal	2006	0	0	0	0	9	0	0	0	0	1	0	0
3	Removal	2007	0	0	0	0	7	0	0	0	0	1	0	0
3	Removal	2008	0	0	0	0	9	0	0	0	0	2	0	0
3	Control	2004	0	1	0	0	0	0	0	0	0	0	0	0
3	Control	2005	0	0	0	0	0	0	0	0	0	2	0	0
3	Control	2006	0	2	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Dichanthelium aciculare*	*Dichanthelium acuminatum*	*Dichanthelium ensifolium*	*Dichanthelium laxiflorum*	Dichanthelium ovale	*Dichanthelium scoparium*	*Dichanthelium sphaerocarpon*	*Dichanthelium strigosum*	*Dichanthelium dichotomum*	*Panicum anceps*	*Panicum verrucosum*	*Panicum virgatum*	*Dichanthelium* seedlings	*Fimbristylis puberula*	*Rhynchospora glomerata*	*Rhynchospora rariflora*	*Scleria* sp	*Scleria ciliata*	*Scleria pauciflora*
3	Control	2007	2	0	57	0	10	0	3	11	0	0	1	0	0	0	0	0	0	0	1
3	Control	2008	2	5	73	0	19	0	2	29	0	1	4	0	0	0	0	0	0	0	6
3	Cov Cont	2004	0	0	2	0	9	0	0	79	0	12	21	0	600	0	2	0	0	0	0
3	Cov Cont	2005	0	0	63	0	2	0	5	253	0	18	0	0	0	0	2	0	0	0	0
3	Cov Cont	2006	0	0	1	0	7	0	0	118	0	13	4	0	0	0	2	0	0	0	0
3	Cov Cont	2007	0	1	41	0	4	0	2	103	0	15	1	0	0	0	2	0	0	0	0
3	Cov Cont	2008	0	0	60	0	3	0	4	213	0	20	2	0	0	0	2	0	0	0	0
4	Control	2004	0	9	1	0	20	0	0	31	0	0	0	0	8	0	0	0	0	0	1
4	Control	2005	0	9	4	0	7	0	0	48	0	0	1	0	0	0	0	0	0	0	21
4	Control	2006	0	19	10	0	22	0	0	34	0	0	1	1	0	0	0	0	0	0	25
4	Control	2007	2	15	40	0	15	0	0	0	0	0	0	0	0	0	0	0	0	22	13
4	Control	2008	12	10	45	0	14	0	0	67	0	0	1	0	0	0	0	0	0	6	12
4	Cov Cont	2004	0	31	26	0	13	0	0	84	0	18	0	9	20	0	0	0	0	0	4
4	Cov Cont	2005	5	41	15	0	10	0	0	71	0	3	0	16	0	0	0	0	0	0	5
4	Cov Cont	2006	2	48	14	0	18	0	0	51	0	0	0	16	0	0	0	0	0	0	8
4	Cov Cont	2007	11	67	96	0	25	0	0	88	0	5	0	13	0	0	0	0	0	0	11
4	Cov Cont	2008	19	83	78	0	31	0	0	94	0	0	1	14	0	0	0	0	0	0	5
4	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	13
4	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	17
4	Removal	2006	0	34	12	0	5	0	0	0	0	1	0	9	0	0	3	0	0	0	14
4	Removal	2007	0	30	59	0	17	0	0	9	0	0	0	3	0	0	4	0	0	4	31
4	Removal	2008	0	24	20	0	0	0	0	2	0	0	0	1	0	0	0	0	0	2	20
5	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5
5	Removal	2006	0	1	0	0	15	0	0	27	0	25	62	0	0	0	6	0	0	0	14
5	Removal	2007	0	3	1	0	4	0	0	12	0	4	28	0	0	0	8	0	0	0	2
5	Removal	2008	0	15	0	4	7	0	0	140	0	63	192	0	0	0	8	0	0	0	5
5	Far Cont	2005	0	17	41	2	5	0	20	4	0	0	31	0	0	0	7	0	0	17	2
5	Far Cont	2006	0	7	14	0	10	0	23	12	0	0	155	0	0	0	8	0	0	19	4
5	Far Cont	2007	0	11	4	0	10	0	7	11	47	0	95	0	0	0	10	3	0	3	0
5	Far Cont	2008	0	16	1	0	7	0	2	69	0	0	72	0	0	0	8	0	0	2	2
5	Control	2004	0	0	1	0	64	0	0	2	0	0	500	0	2	0	2	0	0	0	0
5	Control	2005	0	0	3	0	75	0	0	3	0	0	75	0	0	0	0	0	0	0	0
5	Control	2006	0	0	0	0	75	0	1	2	0	0	206	0	0	0	0	0	0	0	0
5	Control	2007	0	0	1	0	38	0	1	3	0	0	120	0	0	0	0	0	0	0	0
5	Control	2008	0	0	7	0	37	0	1	9	0	0	916	0	0	0	0	0	0	0	0
5	Cov Cont	2004	0	13	1	0	67	0	0	4	0	0	368	0	47	0	2	0	0	2	0
5	Cov Cont	2005	0	15	13	0	80	0	1	22	0	0	29	0	0	0	9	0	0	0	1
5	Cov Cont	2006	0	25	0	0	73	0	1	30	0	0	128	0	0	0	11	3	0	0	6
5	Cov Cont	2007	0	22	11	0	64	0	8	41	0	0	87	0	0	0	8	36	0	0	0
5	Cov Cont	2008	0	36	54	0	76	0	4	96	0	0	196	0	0	0	9	7	0	0	0
6	Far Cont	2005	0	0	45	0	46	0	2	0	0	9	15	0	0	0	0	0	0	35	0

site	Treatment	Year	Cyperaceae sp	Cyperaceae (same within site)	*Acalypha gracilens*	*Ageratina altissima/aromatica*	*Aletris lutea*	*Ambrosia artemisiifolia*	*Symphyotrichum adnatum*	*Symphyotrichum concolor*	*Symphyotrichum dumosum*	*Eurybia hemispherica*	*Symphyotrichum patens*	*Symphyotrichum praealtum*	*Ionactis linariifolius*	*Boltonia diffusa*	*Chrysopsis mariana*	*Cirsium horridulum*	*Conoclinium coelestinum*	*Diodia teres*	Diodia virginiana
3	Control	2007	0	0	11	0	0	0	3	0	6	0	0	0	0	0	0	0	1	0	0
3	Control	2008	0	0	14	0	0	0	8	0	7	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2004	0	0	25	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2005	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2006	0	0	5	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2007	0	0	3	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2008	0	0	9	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
4	Control	2004	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0
4	Control	2005	0	0	11	0	0	0	0	0	32	0	0	0	0	1	0	0	0	0	0
4	Control	2006	0	0	5	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0
4	Control	2007	0	0	3	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0
4	Control	2008	0	0	4	0	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2004	0	0	0	0	0	0	16	0	12	0	0	0	0	0	5	0	0	0	0
4	Cov Cont	2005	0	0	10	0	0	0	28	0	19	0	0	0	0	0	5	0	0	0	0
4	Cov Cont	2006	0	0	4	0	0	0	17	0	13	0	0	0	0	0	6	0	0	0	0
4	Cov Cont	2007	0	0	2	0	0	0	9	0	8	0	0	0	0	0	3	0	0	0	0
4	Cov Cont	2008	0	0	6	0	0	0	7	0	7	0	0	0	0	0	4	0	0	0	0
4	Removal	2004	0	0	3	0	0	0	0	0	18	0	0	0	0	0	4	1	0	0	0
4	Removal	2005	0	5	13	0	0	0	0	0	26	0	0	0	0	0	7	1	0	0	0
4	Removal	2006	0	6	4	0	0	0	0	0	22	0	0	0	0	0	2	0	0	0	0
4	Removal	2007	0	14	9	0	0	0	0	0	26	0	0	0	0	0	1	2	0	0	0
4	Removal	2008	0	4	3	0	0	0	0	0	24	0	0	0	0	0	2	2	0	0	0
5	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Removal	2005	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1
5	Removal	2006	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Removal	2008	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2005	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	15	0	0
5	Far Cont	2006	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	15	0	0
5	Far Cont	2007	0	0	0	15	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0
5	Far Cont	2008	3	0	1	12	0	0	0	0	0	0	0	1	0	0	0	0	4	0	0
5	Control	2004	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2005	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2006	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2007	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2008	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2004	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0
5	Cov Cont	2006	0	0	3	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0
5	Cov Cont	2007	0	0	2	0	0	0	0	0	0	0	0	0	0	8	0	0	1	0	0
5	Cov Cont	2008	0	0	4	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	4
6	Far Cont	2005	0	0	3	0	0	0	0	0	36	0	0	0	0	2	0	0	0	0	0

site	Treatment	Year	*Drosera brevifolia*	*Elephantopus tomentosus*	*Eryngium integrifolium*	*Eryngium yuccifolium*	*Eupatorium album*	*Eupatorium capillifolium*	*Euphorbia corollata*	*Eupatorium perfoliatum*	*Eupatorium rotundifolium*	*Eupatorium semiserratum*	*Gelsemium sempervirens*	*Pseudognaphalium obtusifolium*	*Gratiola pilosa*	*Helianthus angustifolius*	*Helenium flexuosum*	*Houstonia procumbens*	*Helianthus radula*	*Hibiscus aculeatus*	*Hieracium gronovii*
3	Control	2007	0	0	0	0	0	0	1	0	0	0	18	1	0	20	0	0	0	0	0
3	Control	2008	0	0	0	0	0	0	2	0	0	0	11	0	0	23	0	0	0	0	0
3	Cov Cont	2004	9	0	0	0	0	0	0	0	0	2	0	0	0	16	0	0	0	0	0
3	Cov Cont	2005	0	0	0	0	0	0	0	0	0	3	0	0	0	19	0	0	0	0	0
3	Cov Cont	2006	0	0	0	0	0	0	1	0	0	3	0	0	0	21	0	0	0	0	0
3	Cov Cont	2007	1	0	0	0	0	0	1	0	1	3	0	0	0	7	0	0	0	0	0
3	Cov Cont	2008	0	0	0	0	0	0	3	0	0	6	0	0	0	12	0	0	0	0	0
4	Control	2004	7	42	0	0	0	0	0	0	0	0	0	0	0	1	0	0	16	0	0
4	Control	2005	0	7	0	0	0	0	0	0	0	0	0	0	0	3	0	0	12	0	0
4	Control	2006	0	5	0	0	0	0	0	0	0	0	0	0	0	4	0	0	8	0	0
4	Control	2007	0	4	0	0	0	0	0	0	2	0	0	0	0	3	0	0	6	0	0
4	Control	2008	0	7	0	0	0	0	0	0	1	0	0	0	0	1	0	0	6	0	0
4	Cov Cont	2004	47	74	0	0	0	0	0	0	3	0	0	0	0	4	0	0	3	0	0
4	Cov Cont	2005	0	4	0	0	0	0	0	0	15	0	0	0	0	5	0	0	3	0	0
4	Cov Cont	2006	0	8	0	0	0	0	0	0	7	0	0	0	0	4	0	0	3	0	0
4	Cov Cont	2007	13	5	0	0	0	0	0	0	13	0	0	0	0	2	0	0	2	0	0
4	Cov Cont	2008	6	5	0	0	0	0	0	0	9	0	0	0	0	1	0	0	3	0	0
4	Removal	2004	1	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	2	0	0
4	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	2	0	0
4	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	2	0	0
4	Removal	2007	0	0	0	0	0	0	1	0	0	0	0	0	0	9	0	0	2	0	0
4	Removal	2008	2	0	0	0	0	0	0	0	1	0	0	0	0	10	0	0	2	0	0
5	Removal	2004	13	11	0	0	0	0	0	0	3	0	4	0	0	10	2	0	0	0	0
5	Removal	2005	1	91	0	0	0	0	0	0	5	0	4	1	0	32	4	0	0	0	0
5	Removal	2006	0	31	0	0	0	0	1	0	2	0	2	0	2	58	0	0	0	0	0
5	Removal	2007	1	30	0	0	0	0	0	0	3	0	2	0	1	43	5	0	0	0	0
5	Removal	2008	9	30	0	0	0	0	1	0	6	0	0	0	33	35	8	0	0	0	0
5	Far Cont	2005	0	0	0	0	0	0	0	0	6	0	0	0	0	11	0	0	0	0	0
5	Far Cont	2006	0	0	0	0	0	0	1	0	7	0	0	0	0	20	0	0	0	0	0
5	Far Cont	2007	1	0	0	0	0	0	0	0	6	1	1	0	0	9	0	0	0	0	0
5	Far Cont	2008	0	0	0	0	0	0	0	0	6	0	0	0	1	12	0	0	0	0	0
5	Control	2004	23	0	0	0	0	0	0	0	14	2	3	0	0	0	9	0	0	0	0
5	Control	2005	6	0	0	0	0	0	0	0	7	2	3	0	1	0	9	0	0	0	0
5	Control	2006	3	0	0	0	0	0	0	0	6	2	5	0	4	10	12	0	0	0	0
5	Control	2007	0	0	0	0	0	0	0	0	1	2	4	0	1	13	1	0	0	0	0
5	Control	2008	13	0	0	0	0	0	0	0	6	1	2	0	0	25	7	0	0	0	0
5	Cov Cont	2004	72	9	0	0	0	0	0	0	21	0	0	0	1	6	4	0	0	0	0
5	Cov Cont	2005	24	18	0	0	0	0	1	0	9	0	0	3	0	5	11	4	0	0	0
5	Cov Cont	2006	41	7	0	0	0	0	1	0	9	0	0	0	0	29	7	0	0	0	0
5	Cov Cont	2007	9	8	0	0	0	0	0	0	6	0	1	10	1	16	3	0	0	0	0
5	Cov Cont	2008	19	7	0	0	0	0	2	0	40	1	0	0	3	50	6	0	0	0	0
6	Far Cont	2005	0	0	0	0	0	0	1	0	2	1	0	0	0	67	0	0	0	0	0

site	Treatment	Year	*Hyptis alata*	*Hypericum crux-andreae*	*Hypericum hypericoides*	*Hypoxis juncea*	*Hypericum setosum*	*Lactuca graminifolia*	*Lechea minor*	*Liatris* sp	*Linum medium*	*Lobelia brevifolia*	*Lobelia puberula*	*Ludwigia hirtella*	*Mecardonia acuminata*	*Mitchella repens*	*Mitreola sessilifolia*	Unknown Forb Species A	*Oxalis corniculata*	*Phyllanthus caroliniensis*	*Phlox divaricata*
3	Control	2007	0	5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	8	0
3	Control	2008	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0
3	Cov Cont	2004	0	1	0	0	7	0	0	0	0	0	0	0	0	0	10	0	4	6	0
3	Cov Cont	2005	0	2	0	1	11	0	0	0	0	0	1	0	0	0	0	0	2	0	0
3	Cov Cont	2006	0	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0
3	Cov Cont	2007	0	5	0	0	2	0	0	0	0	0	0	0	0	0	2	0	1	0	0
3	Cov Cont	2008	0	6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0
4	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
4	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4	Control	2006	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2004	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Removal	2004	2	6	0	0	0	2	0	0	0	0	2	25	0	99	0	0	0	53	0
5	Removal	2005	2	2	0	2	0	2	0	0	2	0	2	11	0	55	10	0	0	190	0
5	Removal	2006	4	0	0	0	0	1	0	0	0	0	3	7	0	39	0	0	0	345	0
5	Removal	2007	14	1	0	0	0	0	0	0	0	0	3	10	0	51	9	0	0	724	0
5	Removal	2008	29	4	0	0	0	0	0	0	0	0	1	6	0	99	15	0	1	719	0
5	Far Cont	2005	17	3	15	0	5	0	0	0	0	0	1	20	0	0	0	0	0	0	0
5	Far Cont	2006	24	0	7	0	3	0	0	0	0	0	2	10	0	0	0	0	0	10	0
5	Far Cont	2007	13	0	15	0	6	0	0	0	0	0	0	18	0	0	5	0	0	14	0
5	Far Cont	2008	5	0	2	0	3	0	0	0	0	0	1	10	0	0	0	0	0	12	0
5	Control	2004	9	0	0	0	0	0	0	0	0	0	3	94	0	0	1	0	0	15	0
5	Control	2005	6	0	0	0	0	0	0	0	0	0	10	93	0	0	0	0	0	42	0
5	Control	2006	5	0	0	0	0	0	0	0	0	0	8	8	0	0	9	0	0	166	0
5	Control	2007	3	0	0	0	0	0	0	0	0	0	1	6	0	0	8	0	0	353	0
5	Control	2008	23	0	0	0	0	0	0	0	0	0	3	0	0	0	10	0	0	232	0
5	Cov Cont	2004	19	1	0	0	0	0	0	0	0	0	1	18	0	41	0	0	8	20	0
5	Cov Cont	2005	15	1	0	0	0	0	0	0	0	0	12	2	0	32	9	0	8	37	0
5	Cov Cont	2006	12	1	0	0	0	0	0	0	0	0	6	1	0	17	2	0	11	91	0
5	Cov Cont	2007	8	1	0	0	0	0	0	0	0	0	2	4	0	42	10	0	10	80	0
5	Cov Cont	2008	38	2	0	1	0	0	0	0	0	0	2	4	0	48	17	0	25	426	0
6	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	4	39	0

site	Treatment	Year	*Physalis virginiana*	*Pityopsis graminifolia*	*Pluchea foetida*	*Polygala nana*	*Pteridium aquilinum*	*Pycnanthemum albescens*	*Rhexia alifanus*	*Rhexia mariana*	*Ruellia caroliniensis /pedunculata*	*Rudbeckia hirta*	*Rubus trivialis*	*Scutellaria integrifolia*	*Solanum carolinense*	*Solidago odora*	*Solidago rugosa*	*Trachelospermum difforme*	*Trichostema* sp	*Tragia smallii*	Unknown Forb Species B
3	Control	2007	0	6	0	1	0	0	0	0	0	0	1	0	0	4	0	1	0	0	0
3	Control	2008	0	6	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0
3	Cov Cont	2004	0	18	0	0	0	0	0	21	0	0	3	0	0	3	0	0	0	0	0
3	Cov Cont	2005	0	19	0	0	0	0	0	19	0	0	4	2	0	3	0	0	0	0	0
3	Cov Cont	2006	0	31	0	0	0	0	0	12	0	0	2	0	0	2	0	0	0	0	0
3	Cov Cont	2007	0	18	0	0	0	0	0	11	0	0	0	0	0	4	0	0	0	0	0
3	Cov Cont	2008	0	34	0	0	0	0	0	15	0	0	2	0	0	2	0	0	0	0	0
4	Control	2004	0	3	0	0	0	0	0	0	3	0	0	0	0	17	0	0	0	0	0
4	Control	2005	0	12	0	0	0	0	0	0	5	2	0	0	0	6	0	0	0	0	0
4	Control	2006	0	16	0	0	0	0	0	0	2	2	0	0	0	8	0	0	0	0	0
4	Control	2007	0	10	0	0	0	0	0	0	2	9	0	0	0	7	0	0	0	0	0
4	Control	2008	0	26	0	0	0	0	0	0	2	8	0	0	0	12	0	0	0	0	0
4	Cov Cont	2004	0	8	0	0	0	0	4	0	2	0	0	0	0	17	0	0	0	0	0
4	Cov Cont	2005	0	10	0	0	0	0	9	0	3	0	0	0	0	6	2	0	0	1	0
4	Cov Cont	2006	0	8	0	0	0	0	5	0	1	0	1	0	0	7	2	0	0	1	0
4	Cov Cont	2007	0	5	0	0	0	0	9	0	1	0	0	0	0	6	0	0	0	2	0
4	Cov Cont	2008	0	15	0	0	0	0	6	0	1	0	0	0	0	8	0	0	0	1	0
4	Removal	2004	0	3	0	0	0	0	0	0	1	2	5	0	0	29	0	0	0	0	0
4	Removal	2005	0	1	0	0	0	0	0	0	4	2	5	0	0	5	0	0	0	0	0
4	Removal	2006	0	1	0	0	0	0	0	0	0	0	5	0	0	6	0	0	0	0	0
4	Removal	2007	0	3	0	0	0	0	0	0	0	1	7	0	0	5	0	0	0	0	0
4	Removal	2008	0	5	0	0	0	0	0	0	0	1	2	0	0	5	0	0	0	0	0
5	Removal	2004	0	0	0	0	0	0	0	1	1	0	14	0	0	0	20	0	0	0	0
5	Removal	2005	0	0	0	0	0	0	0	1	1	0	12	0	0	0	19	0	0	0	0
5	Removal	2006	0	0	0	0	0	0	0	0	2	0	6	0	0	0	12	0	0	0	2
5	Removal	2007	0	0	0	0	2	0	0	0	0	0	6	0	0	0	15	0	0	0	1
5	Removal	2008	0	0	0	0	0	0	0	1	1	0	8	0	0	0	9	0	0	0	6
5	Far Cont	2005	0	0	0	0	0	0	0	3	1	0	1	5	0	1	31	0	0	1	0
5	Far Cont	2006	0	0	0	0	0	0	0	1	2	0	3	4	0	0	14	0	0	0	0
5	Far Cont	2007	0	0	0	0	0	0	0	1	0	0	3	6	0	2	20	0	0	0	0
5	Far Cont	2008	0	0	0	1	0	0	0	0	0	0	2	4	0	0	24	0	0	1	0
5	Control	2004	1	0	0	0	0	0	0	0	7	0	9	0	0	0	20	0	0	0	1
5	Control	2005	0	0	0	0	0	0	0	0	8	0	6	0	0	0	19	0	0	0	0
5	Control	2006	0	0	0	0	0	0	0	0	15	0	2	0	0	0	22	0	0	0	0
5	Control	2007	0	0	0	0	0	0	0	1	3	0	4	0	0	0	18	0	0	0	0
5	Control	2008	0	0	0	0	0	0	0	1	6	0	3	0	0	0	22	0	0	0	0
5	Cov Cont	2004	0	0	0	0	0	5	0	0	0	0	18	0	0	0	20	0	0	0	0
5	Cov Cont	2005	3	0	0	0	0	6	0	0	1	0	14	1	0	0	38	0	0	0	0
5	Cov Cont	2006	0	0	0	0	0	13	0	0	1	0	15	3	0	0	15	0	0	0	3
5	Cov Cont	2007	0	0	0	0	7	9	0	0	0	0	18	5	0	0	19	0	0	0	10
5	Cov Cont	2008	1	0	0	0	9	21	0	0	0	0	22	6	0	0	23	0	0	0	2
6	Far Cont	2005	0	1	0	0	0	0	0	0	2	0	16	0	0	0	3	0	0	0	0

site	Treatment	Year	Unknown Forb Species C	Unknown Forb Species D	Unknown Forb Species E	Unknown Forb Species F	Unknown Forb Species G	Unknown Forb Species H	Unidentified Forbs	Unknown Forb Species I	Unknown Forb Species J	Unknown Forb Species K	Unidentified basal rosette	*Viola ×primulifolia*	*Viola septemloba*	*Andropogon gyrans*	*Aristida purpurascens*	*Chasmanthium laxum*	*Ctenium aromaticum*	*Agrostis* sp	*Gymnopogon brevifolius*
3	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2004	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0
3	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
3	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2004	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	2	0	20
4	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	15
4	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	3	0	8
4	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	3	0	7
4	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	4	0	4
4	Cov Cont	2004	0	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	8
4	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	33	5	0	0	0	12
4	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	20	12	0	0	0	7
4	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	4
4	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	36	6	0	2	0	5
4	Removal	2004	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	74	0	91
4	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	55	0	21
4	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	0	17
4	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	0	13
4	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	61	0	24
5	Removal	2004	0	0	0	0	0	0	18	1	0	0	0	13	0	0	0	0	0	0	0
5	Removal	2005	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0
5	Removal	2006	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0
5	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
5	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	2	0	4	0	0	0	0	0
5	Far Cont	2006	0	0	0	0	0	0	2	0	0	0	0	0	0	8	0	0	0	0	0
5	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	1	0	20	0	0	0	0	0
5	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	1	0	25	0	0	0	0	0
5	Control	2004	0	0	0	0	0	0	0	70	0	0	0	0	0	0	0	9	0	0	0
5	Control	2005	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0
5	Control	2006	1	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0
5	Control	2007	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	5	0	0	0
5	Control	2008	1	0	0	0	0	0	2	23	3	0	0	0	0	0	0	2	0	0	0
5	Cov Cont	2004	0	0	0	0	0	0	0	210	0	0	0	0	0	0	0	0	0	0	5
5	Cov Cont	2005	10	0	0	0	0	0	2	153	0	0	0	0	0	0	0	0	0	0	13
5	Cov Cont	2006	3	0	0	0	0	0	1	49	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2007	4	0	0	0	0	0	0	59	0	0	0	0	0	0	0	0	0	0	1
5	Cov Cont	2008	12	0	0	0	0	0	0	560	0	0	0	0	0	0	0	0	0	0	0
6	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0

site	Treatment	Year	*Paspalum floridanum*	*Paspalum notatum*	*Schizachyrium scoparium*	*Schizachyrium tenerum*	Unknown Grass A	Unknown Grass B	Unknown Grass C	Unknown Grass D	Unknown Grass E	Unknown Grass F	Unidentified Poaceae	Poaceae (same within site)	Unknown Grass G	*Baptisia bracteata*	*Centrosema virginianum*	*Chamaecrista nicitans*	*Clitoria mariana*	*Crotalaria rotundifolia*	*Desmodium ciliare*
3	Control	2007	0	0	100	30	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Control	2008	0	0	201	85	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2004	0	0	145	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2005	0	0	177	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2006	0	0	140	197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2007	0	0	155	239	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2008	0	0	206	223	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0
4	Control	2004	0	0	103	38	110	0	0	0	0	0	0	3	0	0	0	0	0	0	0
4	Control	2005	0	0	102	62	106	0	0	0	0	0	0	7	0	0	0	0	0	0	0
4	Control	2006	0	0	76	151	104	0	0	0	0	0	0	2	0	0	0	0	0	0	0
4	Control	2007	0	0	80	164	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2008	0	0	102	497	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2004	0	0	123	36	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2005	0	0	93	166	31	27	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2006	0	0	69	238	17	31	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2007	0	0	78	659	23	30	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2008	0	0	106	659	22	35	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2004	0	0	22	0	4	0	0	0	0	0	7	0	0	0	0	0	0	0	0
4	Removal	2005	0	0	69	107	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2006	0	0	95	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2007	0	0	117	350	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2008	0	0	120	324	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Removal	2004	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0
5	Removal	2005	0	0	40	0	9	0	0	0	0	0	0	0	0	0	3	0	0	0	0
5	Removal	2006	0	0	99	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
5	Removal	2007	0	0	181	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5	Removal	2008	0	0	170	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2006	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2007	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2008	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2004	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2005	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2006	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2007	0	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2008	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2004	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2005	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
5	Cov Cont	2006	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2007	0	0	53	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5	Cov Cont	2008	0	0	47	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6	Far Cont	2005	0	0	78	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Desmodium lineatum*	*Desmodium tenuifolium*	*Galactia erecta*	*Galactia volubilis*	*Lespedeza capitata*	*Lespedeza repens*	*Rhynchosia reniformis*	Unidentified Fabaceae seedlings	*Stylosanthes biflora*	*Strophostyles umbellata*	*Tephrosia florida*	*Tephrosia spicata*	*Tephrosia onobrychoides/hispidula*	Fabaceae sp	Fabaceae vine	Fabaceae	*Pinus palustris*	*Pinus taeda*	*Acer rubrum*
3	Control	2007	0	0	0	0	0	0	0	0	45	0	2	0	0	0	0	0	0	1	0
3	Control	2008	0	0	0	0	0	0	0	0	109	0	5	0	0	0	0	0	0	0	0
3	Cov Cont	2004	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	1	2	0
3	Cov Cont	2005	0	0	0	0	0	0	0	1	16	0	0	0	0	0	0	0	1	3	0
3	Cov Cont	2006	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	1	0	0
3	Cov Cont	2007	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	6	1	0
3	Cov Cont	2008	0	0	0	0	0	0	1	0	35	0	0	0	0	0	0	0	4	0	0
4	Control	2004	3	0	0	0	0	0	0	0	85	0	0	1	0	0	0	0	7	4	0
4	Control	2005	3	0	0	0	0	0	0	0	161	0	0	4	0	0	0	0	0	0	0
4	Control	2006	2	0	0	0	0	0	0	0	113	0	0	5	0	0	0	0	0	1	0
4	Control	2007	9	0	0	0	0	0	0	0	138	0	0	8	0	0	0	0	0	0	0
4	Control	2008	4	0	0	0	0	0	0	0	69	0	0	8	0	0	0	0	0	0	0
4	Cov Cont	2004	3	0	0	0	0	0	0	0	58	0	0	8	0	0	0	0	15	2	0
4	Cov Cont	2005	5	0	0	0	0	0	0	0	191	0	0	18	0	0	0	0	0	0	0
4	Cov Cont	2006	5	0	0	0	0	0	0	0	82	0	0	11	0	0	0	0	0	0	0
4	Cov Cont	2007	3	0	0	0	0	0	0	0	172	0	0	16	0	0	0	0	0	0	0
4	Cov Cont	2008	2	0	0	0	0	0	0	0	61	0	0	11	0	0	0	0	0	0	0
4	Removal	2004	1	0	0	0	0	0	0	0	30	0	0	1	0	0	0	0	7	3	0
4	Removal	2005	1	0	0	0	0	0	0	0	138	0	0	2	0	0	0	0	0	0	0
4	Removal	2006	1	0	0	0	0	0	0	0	86	0	0	2	0	0	0	0	1	2	0
4	Removal	2007	1	0	0	0	0	0	0	0	112	0	0	4	0	0	0	0	0	0	0
4	Removal	2008	1	0	0	0	0	0	0	0	47	0	0	2	0	0	0	0	0	0	0
5	Removal	2004	0	0	0	0	0	0	0	2	6	0	0	0	0	0	1	0	0	0	0
5	Removal	2005	0	0	0	0	0	0	0	0	8	0	0	0	0	0	1	0	0	2	0
5	Removal	2006	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0
5	Removal	2007	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0
5	Removal	2008	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2004	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2005	0	0	0	0	0	0	0	0	13	0	0	1	0	0	0	0	0	8	0
5	Cov Cont	2006	0	0	0	0	0	0	0	0	22	0	0	1	0	0	0	0	0	0	0
5	Cov Cont	2007	0	0	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	5	0
5	Cov Cont	2008	0	0	0	0	0	0	0	0	8	0	0	2	0	0	0	0	0	0	0
6	Far Cont	2005	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Aralia spinosa*	*Callicarpa americana*	*Campsis radicans*	*Diospyros virginiana*	*Gaylussacia dumosa*	*Ilex glabra*	*Ilex vomitoria*	*Ligustrum sinense*	*Liquidambar styraciflua*	*Lonicera japonica*	*Malus angustifolia*	*Morella cerifera*	*Nyssa sylvatica*	*Parthenocissus quinquefolia*	*Prunus serotina*	*Quercus falcata*	*Quercus nigra*	*Quercus virginiana*	*Rhus copallinum*
3	Control	2007	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
3	Control	2008	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
3	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1
3	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
3	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0
3	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
3	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1
4	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Removal	2004	0	0	0	0	0	0	0	4	0	0	2	0	0	7	0	0	0	0	0
5	Removal	2005	0	0	0	0	0	0	0	7	0	0	2	1	0	7	0	0	0	0	0
5	Removal	2006	0	1	0	0	0	0	0	0	1	0	1	1	0	12	0	0	0	0	0
5	Removal	2007	0	0	0	0	0	0	0	1	1	0	1	2	0	3	0	0	0	0	0
5	Removal	2008	0	7	0	0	0	0	0	3	1	0	1	0	0	7	0	0	0	0	1
5	Far Cont	2005	0	3	0	0	0	0	7	6	0	1	0	0	0	0	0	0	0	0	0
5	Far Cont	2006	0	0	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2007	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
5	Far Cont	2008	0	0	0	0	0	0	0	7	1	0	0	0	0	0	0	0	0	0	1
5	Control	2004	0	3	0	0	0	0	0	7	0	0	0	0	0	3	0	0	0	0	1
5	Control	2005	0	1	0	0	0	0	0	5	0	0	0	0	0	2	0	0	0	0	0
5	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1
5	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
5	Control	2008	0	3	0	0	0	0	0	7	1	0	0	0	0	1	0	0	0	0	4
5	Cov Cont	2004	0	4	0	0	0	0	0	3	0	2	0	0	0	7	0	0	0	0	1
5	Cov Cont	2005	0	3	0	0	0	0	0	1	0	3	0	0	0	4	0	0	0	0	1
5	Cov Cont	2006	0	4	0	0	0	0	0	1	0	3	0	0	0	6	0	0	0	0	1
5	Cov Cont	2007	0	3	0	0	0	0	0	1	0	2	0	0	0	8	0	0	0	0	1
5	Cov Cont	2008	0	4	0	0	0	0	0	4	0	0	0	0	0	7	0	0	0	0	5
6	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Rubus cuneifolius*	*Sassafras albidum*	*Triadica sebifera*	*Smilax bona-nox*	*Smilax glauca*	*Smilax rotundifolia*	*Toxicodendron radicans*	Unidentified *Vaccineum*	*Vaccinium darrowii*	*Vaccinium elliottii*	*Vaccinium arboreum*	*Vaccinium stamineum*
3	Control	2007	0	1	0	0	0	0	0	0	0	0	0	0
3	Control	2008	0	2	0	0	0	0	0	0	0	0	0	0
3	Cov Cont	2004	0	0	0	0	5	0	0	0	0	0	0	0
3	Cov Cont	2005	0	0	0	0	8	0	0	0	0	0	0	0
3	Cov Cont	2006	0	0	0	0	6	0	0	0	0	0	0	0
3	Cov Cont	2007	0	0	0	0	4	0	0	0	0	0	0	0
3	Cov Cont	2008	0	0	0	0	2	0	0	0	0	0	0	0
4	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0
4	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
4	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
4	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0
5	Removal	2004	0	0	0	0	0	2	0	0	0	0	0	0
5	Removal	2005	0	0	0	0	0	3	0	0	0	0	0	0
5	Removal	2006	0	0	0	0	0	3	0	0	0	0	0	0
5	Removal	2007	0	0	0	0	0	3	0	0	0	0	0	0
5	Removal	2008	0	0	0	0	0	2	0	0	0	0	0	0
5	Far Cont	2005	0	0	0	0	3	0	0	0	0	0	9	3
5	Far Cont	2006	0	0	0	0	5	0	0	0	0	0	3	6
5	Far Cont	2007	0	0	0	0	7	0	0	0	0	0	7	6
5	Far Cont	2008	0	0	0	0	7	0	0	0	0	0	5	4
5	Control	2004	0	0	0	1	1	0	0	0	0	0	0	0
5	Control	2005	0	0	0	1	1	0	0	0	0	0	1	0
5	Control	2006	0	0	0	2	2	0	0	0	0	0	1	0
5	Control	2007	0	0	0	1	3	0	0	0	0	0	1	0
5	Control	2008	0	0	0	1	3	0	0	0	0	0	1	0
5	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
5	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
6	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Dichanthelium aciculare*	*Dichanthelium acuminatum*	*Dichanthelium ensifolium*	*Dichanthelium laxiflorum*	Dichanthelium ovale	*Dichanthelium scoparium*	*Dichanthelium sphaerocarpon*	*Dichanthelium strigosum*	*Dichanthelium dichotomum*	*Panicum anceps*	*Panicum verrucosum*	*Panicum virgatum*	*Dichanthelium* seedlings	*Fimbristylis puberula*	*Rhynchospora glomerata*	*Rhynchospora rariflora*	*Scleria* sp	*Scleria ciliata*	*Scleria pauciflora*
6	Far Cont	2006	0	0	17	0	38	0	1	14	0	21	23	0	0	0	0	3	0	44	0
6	Far Cont	2007	0	1	26	0	36	0	1	0	0	6	7	0	0	0	0	0	0	17	0
6	Far Cont	2008	0	0	52	0	68	0	7	0	0	10	69	0	0	0	0	0	0	31	0
6	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	22
6	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	25
6	Removal	2006	0	11	13	0	32	0	3	0	0	0	0	0	0	0	2	0	0	3	8
6	Removal	2007	0	1	6	0	11	0	0	0	0	0	0	0	0	0	1	0	0	5	0
6	Removal	2008	0	6	49	0	39	0	1	0	0	0	0	0	0	0	2	0	0	3	10
6	Control	2004	0	32	132	0	15	0	0	0	0	4	0	0	0	0	9	0	0	26	0
6	Control	2005	0	20	99	0	23	0	1	0	0	0	0	0	0	0	7	0	0	10	0
6	Control	2006	0	13	119	0	69	0	0	0	0	0	0	0	0	0	8	0	0	19	0
6	Control	2007	0	10	80	0	81	0	1	0	0	0	0	0	0	0	6	0	0	0	0
6	Control	2008	0	31	245	0	284	0	3	0	0	1	1	0	0	0	9	0	0	16	0
6	Cov Cont	2004	0	2	33	0	21	0	0	0	0	0	6	0	0	0	20	0	0	8	24
6	Cov Cont	2005	0	2	32	0	7	0	6	1	0	1	0	0	0	0	15	0	0	5	0
6	Cov Cont	2006	0	1	15	0	19	0	8	1	0	3	3	0	0	0	11	0	0	7	29
6	Cov Cont	2007	0	2	10	0	15	0	13	0	0	3	1	0	0	0	11	10	0	11	0
6	Cov Cont	2008	0	3	63	0	103	0	17	0	0	3	0	0	0	0	13	0	0	5	0
7	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	5	0
7	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	3	2
7	Removal	2006	0	3	8	0	4	0	1	0	0	0	0	0	0	0	2	3	0	4	0
7	Removal	2007	0	1	8	0	19	0	4	0	0	0	0	0	0	0	2	0	0	3	5
7	Removal	2008	0	1	9	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7	Cov Cont	2004	0	14	29	0	15	0	1	0	0	29	0	0	0	0	0	0	0	0	0
7	Cov Cont	2005	0	2	0	0	18	0	1	0	0	27	0	0	0	0	0	0	0	0	0
7	Cov Cont	2006	0	5	7	0	10	0	1	0	0	32	0	0	0	0	0	0	0	0	0
7	Cov Cont	2007	0	7	21	0	18	0	1	3	0	37	0	0	0	0	0	0	0	0	0
7	Cov Cont	2008	0	10	18	0	23	0	1	2	0	47	0	0	0	0	0	0	0	0	0
7	Control	2004	0	9	86	0	12	0	7	5	0	1	0	1	0	0	11	0	0	0	2
7	Control	2005	0	11	0	0	7	0	1	0	0	1	0	0	0	0	5	0	0	0	8
7	Control	2006	0	14	49	0	8	0	7	2	0	3	0	0	0	0	0	0	0	0	0
7	Control	2007	0	18	92	0	18	0	16	4	0	1	0	0	0	0	0	0	0	0	10
7	Control	2008	0	2	67	0	11	0	24	3	0	2	0	0	0	0	0	0	0	0	4
8	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2006	0	0	0	23	0	0	0	0	0	0	18	0	0	0	2	0	0	1	0
8	Removal	2007	0	0	0	2	0	0	0	0	0	0	1	0	0	0	11	0	0	5	0
8	Removal	2008	0	0	0	9	4	0	1	0	0	0	32	0	0	0	18	0	0	2	0
8	Cov Cont	2004	0	0	6	0	0	0	2	9	0	0	426	0	0	0	3	0	0	0	0
8	Cov Cont	2005	0	0	0	1	18	0	8	0	0	0	53	0	0	0	6	4	0	0	0
8	Cov Cont	2006	0	0	36	0	0	0	12	0	0	0	322	0	0	0	3	2	0	0	0
8	Cov Cont	2007	0	0	27	0	0	0	17	0	0	0	60	0	0	0	19	1	0	0	0

site	Treatment	Year	Cyperaceae sp	Cyperaceae (same within site)	*Acalypha gracilens*	*Ageratina altissima/aromatica*	*Aletris lutea*	*Ambrosia artemisiifolia*	*Symphyotrichum adnatum*	*Symphyotrichum concolor*	*Symphyotrichum dumosum*	*Eurybia hemispherica*	*Symphyotrichum patens*	*Symphyotrichum praealtum*	*Ionactis linariifolius*	*Boltonia diffusa*	*Chrysopsis mariana*	*Cirsium horridulum*	*Conoclinium coelestinum*	*Diodia teres*	Diodia virginiana
6	Far Cont	2006	0	0	9	0	0	0	0	0	41	0	0	0	0	3	0	0	0	0	0
6	Far Cont	2007	0	0	7	0	0	0	0	0	15	0	0	0	0	1	0	0	0	0	0
6	Far Cont	2008	0	0	20	0	0	0	0	0	42	0	0	0	0	2	0	0	0	0	0
6	Removal	2004	0	16	13	0	0	0	0	0	48	0	0	0	0	0	0	0	0	0	0
6	Removal	2005	0	5	2	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0
6	Removal	2006	0	0	6	0	0	0	0	0	47	0	0	0	0	0	0	0	0	0	0
6	Removal	2007	0	10	9	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0
6	Removal	2008	0	7	34	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0
6	Control	2004	0	0	28	0	0	0	0	0	28	0	0	0	0	2	0	0	0	0	0
6	Control	2005	0	0	2	0	0	0	0	0	17	0	0	0	0	1	0	0	0	0	0
6	Control	2006	0	0	10	0	0	0	0	0	25	0	0	0	0	1	0	0	0	0	0
6	Control	2007	0	0	1	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0
6	Control	2008	0	0	40	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2004	0	0	20	0	0	0	0	0	70	0	0	0	0	1	0	0	0	0	0
6	Cov Cont	2005	0	0	1	0	0	0	0	0	43	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2006	0	3	4	0	0	0	0	0	61	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2007	0	22	0	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2008	0	4	52	0	0	0	0	0	42	0	0	0	0	0	0	0	0	0	0
7	Removal	2004	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7	Removal	2005	0	0	21	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0
7	Removal	2006	0	1	10	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0
7	Removal	2007	0	1	44	0	0	0	0	0	4	0	3	0	0	0	0	0	0	0	0
7	Removal	2008	0	3	4	0	0	0	0	0	5	0	2	0	0	0	0	0	0	0	0
7	Cov Cont	2004	0	0	1	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0
7	Cov Cont	2005	0	0	15	0	0	0	0	0	1	0	11	0	0	0	0	0	0	0	0
7	Cov Cont	2006	0	0	4	0	0	0	0	0	2	0	13	0	0	0	0	0	0	0	0
7	Cov Cont	2007	0	0	23	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0
7	Cov Cont	2008	0	0	5	0	0	0	0	0	5	0	4	0	0	0	0	0	0	0	0
7	Control	2004	0	0	2	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0
7	Control	2005	0	0	19	0	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0
7	Control	2006	0	6	7	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0
7	Control	2007	0	5	24	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0
7	Control	2008	0	3	2	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
8	Removal	2004	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2005	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8	Removal	2006	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8	Removal	2008	0	0	10	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0
8	Cov Cont	2004	0	0	32	0	0	1	0	0	4	0	0	0	0	0	0	0	1	0	0
8	Cov Cont	2005	0	0	1	0	0	0	0	0	3	0	0	0	0	1	0	0	6	0	0
8	Cov Cont	2006	0	0	8	0	0	0	0	0	10	0	0	0	0	2	0	0	4	0	0
8	Cov Cont	2007	0	0	0	0	0	0	0	0	13	0	0	0	0	1	0	0	14	0	0

site	Treatment	Year	*Drosera brevifolia*	*Elephantopus tomentosus*	*Eryngium integrifolium*	*Eryngium yuccifolium*	*Eupatorium album*	*Eupatorium capillifolium*	*Euphorbia corollata*	*Eupatorium perfoliatum*	*Eupatorium rotundifolium*	*Eupatorium semiserratum*	*Gelsemium sempervirens*	*Pseudognaphalium obtusifolium*	*Gratiola pilosa*	*Helianthus angustifolius*	*Helenium flexuosum*	*Houstonia procumbens*	*Helianthus radula*	*Hibiscus aculeatus*	*Hieracium gronovii*
6	Far Cont	2006	0	0	0	0	0	0	2	0	2	0	0	0	0	20	0	0	0	0	0
6	Far Cont	2007	0	0	0	0	0	0	0	0	4	1	0	0	0	11	0	0	0	0	0
6	Far Cont	2008	0	0	0	0	0	0	2	0	6	1	0	0	0	14	0	0	0	0	0
6	Removal	2004	1	0	0	0	0	0	0	0	1	1	0	0	0	22	0	0	0	0	0
6	Removal	2005	0	0	0	0	0	0	0	0	1	3	0	0	0	37	0	0	0	0	0
6	Removal	2006	0	0	0	0	0	0	1	0	1	1	0	0	0	23	0	0	0	0	0
6	Removal	2007	0	0	0	0	0	0	0	0	0	1	0	0	0	25	0	0	0	0	0
6	Removal	2008	0	0	0	0	0	0	2	0	1	3	0	0	0	16	0	0	0	0	0
6	Control	2004	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0
6	Control	2005	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0
6	Control	2006	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0
6	Control	2007	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2008	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2004	0	0	0	0	0	0	6	0	2	0	0	0	0	9	0	0	0	0	0
6	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0
6	Cov Cont	2006	0	0	0	0	0	0	1	0	0	0	0	0	0	25	0	0	0	0	0
6	Cov Cont	2007	0	0	0	0	0	0	2	0	0	0	0	0	0	8	0	0	0	0	0
6	Cov Cont	2008	0	0	0	0	0	0	7	0	1	1	0	0	0	13	0	0	0	0	0
7	Removal	2004	0	86	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
7	Removal	2005	0	10	0	0	0	0	3	0	0	2	0	0	0	0	0	0	0	0	0
7	Removal	2006	0	40	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
7	Removal	2007	0	17	0	0	0	0	6	0	0	2	0	0	0	0	0	0	0	0	0
7	Removal	2008	0	65	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0
7	Cov Cont	2004	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2005	0	5	0	0	0	0	10	0	0	0	0	0	0	2	0	0	0	0	0
7	Cov Cont	2006	0	10	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2007	0	4	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2008	0	28	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2004	0	26	0	0	0	0	1	0	0	0	0	0	0	7	0	0	0	0	0
7	Control	2005	0	11	0	0	0	0	3	0	0	0	0	0	0	13	0	0	0	0	0
7	Control	2006	0	2	0	0	0	0	1	0	0	1	0	0	0	8	0	0	0	0	0
7	Control	2007	0	2	0	0	0	0	4	0	5	0	0	0	0	2	0	0	0	0	0
7	Control	2008	0	4	0	0	0	0	2	0	0	1	0	0	0	9	0	0	0	0	0
8	Removal	2004	0	0	0	0	0	0	0	0	7	2	0	0	0	0	0	0	0	0	0
8	Removal	2005	0	0	0	0	0	0	0	2	5	2	0	0	0	0	0	0	0	0	0
8	Removal	2006	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0
8	Removal	2007	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0	1	0	0	0
8	Removal	2008	0	0	0	0	0	0	0	0	17	2	0	0	0	0	0	12	0	0	0
8	Cov Cont	2004	0	0	0	0	0	0	0	0	14	1	0	0	0	6	0	0	0	1	0
8	Cov Cont	2005	0	0	0	0	0	0	0	9	8	9	0	0	0	7	0	0	0	0	0
8	Cov Cont	2006	0	0	0	0	0	0	0	3	8	3	0	0	0	29	0	0	0	0	0
8	Cov Cont	2007	1	0	0	0	0	0	0	1	9	1	0	0	0	28	0	0	0	0	0

site	Treatment	Year	*Hyptis alata*	*Hypericum crux-andreae*	*Hypericum hypericoides*	*Hypoxis juncea*	*Hypericum setosum*	*Lactuca graminifolia*	*Lechea minor*	*Liatris* sp	*Linum medium*	*Lobelia brevifolia*	*Lobelia puberula*	*Ludwigia hirtella*	*Mecardonia acuminata*	*Mitchella repens*	*Mitreola sessilifolia*	Unknown Forb Species A	*Oxalis corniculata*	*Phyllanthus caroliniensis*	*Phlox divaricata*
6	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	122	0
6	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	85	0
6	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	235	0
6	Removal	2004	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
6	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
6	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	15
6	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
6	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
6	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
6	Cov Cont	2007	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
6	Cov Cont	2008	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	15
7	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7	Cov Cont	2005	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
7	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0
8	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	4	179	0
8	Removal	2005	0	0	0	0	0	0	0	0	0	0	2	0	42	0	0	0	1	2260	0
8	Removal	2006	0	0	0	0	0	0	0	0	0	0	1	0	12	0	0	0	2	1004	0
8	Removal	2007	0	0	0	0	0	0	0	0	0	0	1	0	20	0	1	0	3	2105	0
8	Removal	2008	1	2	0	0	0	0	0	0	0	0	0	0	11	0	2	0	10	806	0
8	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	2	1	23	0	107	0	6	354	0
8	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	14	3	43	0	3	0	5	820	0
8	Cov Cont	2006	1	0	0	0	0	0	0	0	0	0	11	0	30	0	0	0	3	920	0
8	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	2	0	14	0	0	0	6	652	0

site	Treatment	Year	*Physalis virginiana*	*Pityopsis graminifolia*	*Pluchea foetida*	*Polygala nana*	*Pteridium aquilinum*	*Pycnanthemum albescens*	*Rhexia alifanus*	*Rhexia mariana*	*Ruellia caroliniensis /pedunculata*	*Rudbeckia hirta*	*Rubus trivialis*	*Scutellaria integrifolia*	*Solanum carolinense*	*Solidago odora*	*Solidago rugosa*	*Trachelospermum difforme*	*Trichostema* sp	*Tragia smallii*	Unknown Forb Species B
6	Far Cont	2006	0	4	0	0	0	0	0	0	1	0	8	0	0	0	0	0	0	0	0
6	Far Cont	2007	0	4	0	0	0	0	0	0	2	0	8	0	0	1	0	0	0	1	0
6	Far Cont	2008	0	7	0	0	0	0	0	0	4	0	10	0	0	0	0	0	0	1	0
6	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	1	0
6	Removal	2005	0	0	0	0	0	0	0	0	1	0	2	0	0	3	6	0	0	1	0
6	Removal	2006	0	0	0	0	0	0	0	0	0	0	4	0	0	2	1	0	0	1	0
6	Removal	2007	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	1	0
6	Removal	2008	0	0	0	0	0	0	0	0	0	0	3	0	0	2	4	0	0	1	0
6	Control	2004	0	3	0	0	0	0	0	0	1	9	1	0	0	1	1	0	0	0	0
6	Control	2005	0	4	0	0	0	0	0	0	3	3	2	0	0	0	1	0	0	1	0
6	Control	2006	0	7	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0
6	Control	2007	0	5	0	0	0	0	0	0	0	11	1	0	0	0	0	0	0	1	0
6	Control	2008	0	8	0	0	0	0	0	0	2	12	1	0	0	0	0	0	0	1	0
6	Cov Cont	2004	0	0	0	0	0	0	0	0	3	1	4	0	0	0	0	0	0	0	0
6	Cov Cont	2005	0	0	0	0	0	0	0	0	3	1	3	0	0	0	0	0	0	0	0
6	Cov Cont	2006	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	0	0	0
6	Cov Cont	2007	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0
6	Cov Cont	2008	0	0	0	0	0	0	0	0	1	0	7	0	0	0	0	0	0	0	1
7	Removal	2004	0	7	0	0	0	0	0	0	0	0	10	0	0	32	2	0	0	0	0
7	Removal	2005	0	8	0	0	0	0	0	0	0	0	17	0	0	3	2	0	0	4	0
7	Removal	2006	0	15	0	0	0	0	0	0	0	0	11	0	0	10	1	0	0	2	2
7	Removal	2007	0	10	0	0	0	0	0	0	0	0	14	0	0	4	0	0	0	1	0
7	Removal	2008	0	9	0	0	0	0	0	0	0	0	10	0	0	17	1	0	0	3	2
7	Cov Cont	2004	0	10	0	0	0	0	0	0	0	0	5	0	0	19	4	0	0	0	0
7	Cov Cont	2005	0	16	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	6	0
7	Cov Cont	2006	0	7	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	5	0
7	Cov Cont	2007	0	19	0	0	0	0	0	0	0	0	7	0	0	6	0	0	0	6	0
7	Cov Cont	2008	0	24	0	0	0	0	0	0	0	0	10	0	0	6	0	0	0	8	7
7	Control	2004	0	0	0	0	0	0	0	0	0	0	12	0	0	15	0	0	0	0	0
7	Control	2005	0	0	0	0	0	0	0	0	0	0	14	0	0	5	0	0	0	0	0
7	Control	2006	0	1	0	0	0	0	0	0	0	0	9	0	0	23	0	0	0	0	0
7	Control	2007	0	0	0	0	0	0	0	0	0	0	12	0	0	8	0	0	0	0	0
7	Control	2008	0	0	0	0	0	0	0	0	0	0	9	0	0	10	1	0	0	1	0
8	Removal	2004	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8	Removal	2005	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8	Removal	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8	Removal	2007	0	0	0	0	0	0	0	0	0	0	2	0	0	0	9	0	0	0	0
8	Removal	2008	2	0	0	0	0	0	0	0	0	0	1	0	0	0	14	0	0	0	0
8	Cov Cont	2004	0	0	50	0	0	13	0	0	2	0	0	1	1	0	5	0	0	0	0
8	Cov Cont	2005	0	0	62	0	0	8	0	0	2	0	0	1	1	0	10	0	0	0	0
8	Cov Cont	2006	0	0	0	0	0	15	0	0	3	0	0	4	2	0	8	0	0	0	0
8	Cov Cont	2007	0	0	6	0	0	14	0	0	4	0	0	1	2	0	18	0	0	0	0

site	Treatment	Year	Unknown Forb Species C	Unknown Forb Species D	Unknown Forb Species E	Unknown Forb Species F	Unknown Forb Species G	Unknown Forb Species H	Unidentified Forbs	Unknown Forb Species I	Unknown Forb Species J	Unknown Forb Species K	Unidentified basal rosette	*Viola ×primulifolia*	*Viola septemloba*	*Andropogon gyrans*	*Aristida purpurascens*	*Chasmanthium laxum*	*Ctenium aromaticum*	*Agrostis* sp	*Gymnopogon brevifolius*
6	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
6	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	0	0
6	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0
6	Removal	2004	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
6	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0
6	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0	0	0	0
6	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0
6	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	87	0	0	0	0
6	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	0	0	0	0
6	Cov Cont	2004	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4
6	Cov Cont	2005	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	3
6	Cov Cont	2007	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7	Removal	2004	0	0	0	0	0	0	1	0	0	0	0	0	5	0	0	0	0	0	0
7	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	4	5	0	0	0	4	0
7	Removal	2006	0	0	0	0	0	0	0	0	0	0	2	0	4	12	0	0	0	18	0
7	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	3
7	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	6	0	12	0	0	9	0
7	Cov Cont	2004	0	0	0	0	0	0	2	0	0	0	0	0	3	0	0	0	25	0	76
7	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	31	0	121
7	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	3	0	4	0	0	0	36	0	99
7	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	54	0	67
7	Cov Cont	2008	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	73	0	48
7	Control	2004	0	0	0	0	0	0	1	0	0	0	0	0	34	0	0	0	0	0	43
7	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	40
7	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	35
7	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	78
7	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	74
8	Removal	2004	0	0	0	0	0	0	4	0	0	0	0	58	0	0	0	0	0	0	0
8	Removal	2005	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0
8	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0
8	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	3	0	22	0	0	0	0	0
8	Removal	2008	1	0	0	0	0	0	0	0	0	0	0	1	0	43	0	0	0	0	0
8	Cov Cont	2004	0	0	0	0	0	0	12	0	0	0	0	54	0	0	0	0	0	0	0
8	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0
8	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	6	0	1	0	0	0	0	0
8	Cov Cont	2007	0	0	0	0	0	0	0	0	2	2	0	12	0	16	0	0	0	0	0

site	Treatment	Year	*Paspalum floridanum*	*Paspalum notatum*	*Schizachyrium scoparium*	*Schizachyrium tenerum*	Unknown Grass A	Unknown Grass B	Unknown Grass C	Unknown Grass D	Unknown Grass E	Unknown Grass F	Unidentified Poaceae	Poaceae (same within site)	Unknown Grass G	*Baptisia bracteata*	*Centrosema virginianum*	*Chamaecrista nictitans*	*Clitoria mariana*	*Crotalaria rotundifolia*	*Desmodium ciliare*
6	Far Cont	2006	0	0	27	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Far Cont	2007	0	0	137	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Far Cont	2008	0	0	127	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2004	0	0	46	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2005	0	0	118	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2006	0	0	119	129	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
6	Removal	2007	0	0	243	192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2008	0	0	205	324	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2004	0	0	85	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0	0
6	Control	2005	0	0	98	7	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0
6	Control	2006	0	0	59	26	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0
6	Control	2007	0	0	51	4	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
6	Control	2008	0	0	80	47	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
6	Cov Cont	2004	0	0	16	155	0	88	17	0	0	0	0	0	6	0	0	0	0	0	0
6	Cov Cont	2005	0	0	13	168	0	83	38	0	0	0	0	12	0	0	1	0	0	0	0
6	Cov Cont	2006	0	0	16	287	2	97	39	0	0	0	0	6	0	0	3	0	0	0	0
6	Cov Cont	2007	0	0	61	354	0	85	55	0	0	0	0	0	0	0	1	0	0	0	0
6	Cov Cont	2008	0	0	43	520	38	100	54	0	0	0	0	2	0	0	1	0	0	0	0
7	Removal	2004	0	0	68	22	0	0	1	0	0	0	9	0	0	0	2	0	0	0	2
7	Removal	2005	0	0	23	81	0	0	5	0	0	0	0	0	0	0	0	0	0	0	4
7	Removal	2006	0	0	31	78	0	0	6	0	0	0	1	0	0	0	0	0	0	0	2
7	Removal	2007	0	0	25	58	0	0	5	0	0	0	23	0	0	0	0	0	0	0	5
7	Removal	2008	0	0	78	245	0	0	10	0	0	0	0	0	0	0	0	0	0	0	2
7	Cov Cont	2004	0	0	33	2	0	58	0	0	0	0	0	0	0	0	15	0	0	0	4
7	Cov Cont	2005	0	0	36	0	0	53	0	0	0	0	0	0	0	0	39	0	0	0	3
7	Cov Cont	2006	0	0	34	0	0	58	0	0	0	0	0	0	0	0	19	0	0	0	1
7	Cov Cont	2007	0	0	55	0	0	48	0	0	0	0	0	0	0	0	10	0	0	0	2
7	Cov Cont	2008	0	0	107	0	0	74	0	0	0	0	0	0	0	0	17	0	0	0	14
7	Control	2004	0	0	35	44	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2
7	Control	2005	0	0	28	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7	Control	2006	0	0	43	102	0	0	0	0	0	0	4	0	0	0	0	0	0	0	2
7	Control	2007	0	0	55	227	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7	Control	2008	0	0	95	236	0	0	0	0	0	0	0	0	0	0	11	0	0	0	3
8	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2005	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2008	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2004	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2005	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2006	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2007	0	0	99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Desmodium lineatum*	*Desmodium tenuifolium*	*Galactia erecta*	*Galactia volubilis*	*Lespedeza capitata*	*Lespedeza repens*	*Rhynchosia reniformis*	Unidentified Fabaceae seedlings	*Stylosanthes biflora*	*Strophostyles umbellata*	*Tephrosia florida*	*Tephrosia spicata*	*Tephrosia onobrychoides/hispidula*	Fabaceae sp	Fabaceae vine	Fabaceae	*Pinus palustris*	*Pinus taeda*	*Acer rubrum*
6	Far Cont	2006	0	0	0	0	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0
6	Far Cont	2007	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	2	0	0
6	Far Cont	2008	0	0	0	0	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0
6	Removal	2004	1	0	0	0	0	0	0	1	40	0	0	1	0	0	0	0	0	0	0
6	Removal	2005	0	0	0	0	0	0	0	0	26	0	0	1	0	0	0	0	0	0	0
6	Removal	2006	3	0	0	0	0	0	0	0	35	0	0	2	0	0	0	0	0	0	0
6	Removal	2007	1	0	0	0	0	0	0	0	18	0	0	1	0	0	0	0	1	1	0
6	Removal	2008	4	0	0	0	0	0	0	0	96	0	0	1	0	0	0	0	0	0	0
6	Control	2004	3	0	0	0	0	0	0	0	12	0	0	1	0	0	0	0	0	0	0
6	Control	2005	3	0	0	0	0	0	0	0	10	0	0	3	0	0	0	0	0	0	0
6	Control	2006	2	0	0	0	0	0	0	0	14	0	0	4	0	0	0	0	0	0	0
6	Control	2007	1	0	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	0
6	Control	2008	1	0	0	0	0	0	0	0	21	0	0	6	0	0	0	0	0	0	0
6	Cov Cont	2004	0	0	0	0	0	0	0	0	33	0	0	9	0	0	0	0	0	0	0
6	Cov Cont	2005	0	0	0	0	0	0	0	0	24	0	0	4	0	0	0	0	0	0	0
6	Cov Cont	2006	0	0	0	0	0	0	0	0	61	0	0	12	0	0	0	0	0	0	0
6	Cov Cont	2007	0	0	0	0	0	0	0	0	17	0	0	5	0	0	0	0	1	1	0
6	Cov Cont	2008	0	2	0	0	0	0	0	0	88	0	0	15	0	0	0	0	0	0	0
7	Removal	2004	0	0	0	0	0	3	0	0	4	0	0	0	6	0	0	0	35	0	0
7	Removal	2005	0	0	0	0	0	2	0	0	63	0	0	0	3	0	0	0	0	0	0
7	Removal	2006	0	0	0	0	0	6	0	5	33	0	0	1	2	0	0	0	0	0	0
7	Removal	2007	0	0	0	0	0	2	0	0	58	0	0	1	4	0	0	0	0	0	0
7	Removal	2008	0	0	0	0	0	5	0	0	5	0	0	1	4	0	0	0	0	0	0
7	Cov Cont	2004	0	0	0	0	0	0	0	3	1	0	0	1	0	0	0	0	30	0	0
7	Cov Cont	2005	0	0	0	0	0	0	0	3	46	0	0	3	0	0	0	0	3	0	0
7	Cov Cont	2006	0	0	0	0	0	0	0	2	27	0	0	2	0	0	0	0	2	0	0
7	Cov Cont	2007	0	0	0	0	0	0	0	0	37	0	0	2	0	0	0	0	0	0	0
7	Cov Cont	2008	0	0	0	0	0	0	0	0	11	0	0	2	0	0	0	0	0	0	0
7	Control	2004	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	36	1	0
7	Control	2005	0	0	0	0	0	0	0	0	133	0	0	0	0	0	0	0	2	0	0
7	Control	2006	0	0	0	0	0	0	0	0	43	0	0	0	0	0	0	0	1	0	0
7	Control	2007	0	0	0	0	0	0	0	0	112	0	0	0	0	0	0	0	1	0	0
7	Control	2008	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	1	0	0
8	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Aralia spinosa*	*Callicarpa americana*	*Campsis radicans*	*Diospyros virginiana*	*Gaylussacia dumosa*	*Ilex glabra*	*Ilex vomitoria*	*Ligustrum sinense*	*Liquidambar styraciflua*	*Lonicera japonica*	*Malus angustifolia*	*Morella cerifera*	*Nyssa sylvatica*	*Parthenocissus quinquefolia*	*Prunus serotina*	*Quercus falcata*	*Quercus nigra*	*Quercus virginiana*	*Rhus copallinum*
6	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
6	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6	Control	2004	0	0	0	0	0	12	0	0	0	0	1	0	0	0	0	0	0	0	0
6	Control	2005	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2006	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2007	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2008	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2006	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2007	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2008	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	1
7	Removal	2004	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
7	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
7	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
7	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
8	Removal	2004	0	154	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	2
8	Removal	2005	0	93	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2006	0	7	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	4
8	Removal	2007	0	5	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	2
8	Removal	2008	0	12	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0	5
8	Cov Cont	2004	0	16	0	0	0	2	0	9	3	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2005	0	3	0	0	0	2	0	16	3	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2006	0	0	0	0	0	5	0	12	3	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2007	0	1	0	0	0	4	0	13	3	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Rubus cuneifolius*	*Sassafras albidum*	*Triadica sebifera*	*Smilax bona-nox*	*Smilax glauca*	*Smilax rotundifolia*	*Toxicodendron radicans*	Unidentified *Vaccineum*	*Vaccinium darrowii*	*Vaccinium elliottii*	*Vaccinium arboreum*	*Vaccinium stamineum*
6	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
6	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
6	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
6	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0
6	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
6	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
7	Removal	2004	0	0	0	0	0	0	0	0	3	0	0	0
7	Removal	2005	0	0	0	0	0	0	0	0	1	0	0	0
7	Removal	2006	0	0	0	0	0	0	0	0	1	0	0	0
7	Removal	2007	0	0	0	0	0	0	0	0	3	0	0	0
7	Removal	2008	0	0	0	0	0	0	0	0	3	0	0	0
7	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
7	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0
7	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
8	Removal	2004	0	1	0	0	0	0	0	0	0	0	0	0
8	Removal	2005	1	2	0	0	0	0	0	0	0	0	0	0
8	Removal	2006	0	2	0	0	0	0	0	0	0	0	0	0
8	Removal	2007	0	2	0	0	0	0	0	0	0	0	0	0
8	Removal	2008	0	3	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
8	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Dichanthelium aciculare*	*Dichanthelium acuminatum*	*Dichanthelium ensifolium*	*Dichanthelium laxiflorum*	Dichanthelium ovale	*Dichanthelium scoparium*	*Dichanthelium sphaerocarpon*	*Dichanthelium strigosum*	*Dichanthelium dichotomum*	*Panicum anceps*	*Panicum verrucosum*	*Panicum virgatum*	*Dichanthelium* seedlings	*Fimbristylis puberula*	*Rhynchospora glomerata*	*Rhynchospora rariflora*	*Scleria* sp	*Scleria ciliata*	*Scleria pauciflora*
8	Cov Cont	2008	0	0	0	1	52	0	6	0	0	0	384	0	0	0	10	0	0	0	0
8	Control	2004	0	0	0	31	20	0	1	3	0	0	336	0	0	0	13	0	0	5	0
8	Control	2005	0	0	3	35	33	0	11	3	0	0	22	0	0	0	21	0	0	7	0
8	Control	2006	0	0	1	73	135	0	23	5	0	0	102	0	0	0	17	1	0	8	0
8	Control	2007	0	0	2	83	138	0	12	10	0	0	14	0	0	0	12	2	0	18	0
8	Control	2008	0	0	46	28	341	0	19	27	0	0	138	0	0	0	19	5	0	12	0
9	Control	2004	0	63	6	0	0	0	0	9	0	3	0	0	19	0	0	0	0	0	0
9	Control	2005	0	45	45	0	3	0	0	23	0	0	0	0	0	0	0	0	0	0	0
9	Control	2006	0	22	23	0	1	0	0	12	0	0	0	0	0	0	1	0	0	0	0
9	Control	2007	0	33	45	0	4	0	0	23	0	0	0	0	0	0	2	0	0	0	0
9	Control	2008	0	54	77	0	29	0	0	22	0	0	0	0	0	0	2	0	0	0	0
9	Removal	2004	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	24	0
9	Removal	2005	0	0	10	0	0	0	0	1	0	0	0	0	0	0	0	0	0	49	0
9	Removal	2006	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	45	0
9	Removal	2007	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
9	Removal	2008	0	3	19	0	2	0	0	4	0	0	0	0	0	0	0	0	0	21	0
9	Cov Cont	2004	0	16	9	0	2	0	0	1	0	0	0	2	98	0	0	0	0	0	0
9	Cov Cont	2005	0	36	56	0	16	0	0	7	0	2	0	4	0	0	0	0	0	0	0
9	Cov Cont	2006	0	32	24	0	8	0	0	8	0	1	0	4	0	0	0	0	0	1	0
9	Cov Cont	2007	0	20	70	0	6	0	0	4	0	0	0	4	0	0	0	0	0	1	0
9	Cov Cont	2008	0	44	93	0	22	0	0	1	0	3	0	3	0	0	0	0	0	0	0
10	Cov Cont	2004	0	8	0	0	7	0	0	51	0	0	16	0	0	0	9	0	0	0	1
10	Cov Cont	2005	0	2	0	0	2	0	0	51	0	1	227	0	0	0	5	2	0	0	3
10	Cov Cont	2006	0	4	1	0	3	0	0	45	0	1	7	0	0	0	13	1	0	0	0
10	Cov Cont	2007	0	6	1	0	13	0	0	77	0	1	195	0	0	0	14	0	0	0	2
10	Cov Cont	2008	0	12	6	0	14	0	0	92	0	1	11	0	0	0	0	0	0	0	2
10	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2005	0	0	0	0	1	0	0	3	0	0	100	0	0	0	0	5	0	0	0
10	Removal	2006	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	4	0	0	0
10	Removal	2007	0	0	1	0	3	0	0	0	0	0	86	0	0	0	0	0	0	0	0
10	Removal	2008	0	2	1	0	0	0	0	3	0	0	3	0	0	0	0	2	0	0	0
10	Control	2004	0	3	24	0	8	0	0	29	0	0	6	0	0	0	1	0	0	0	0
10	Control	2005	0	1	4	0	5	0	0	25	0	0	295	0	0	0	0	0	0	0	0
10	Control	2006	0	1	13	0	15	0	0	22	0	0	6	0	0	0	0	0	0	0	0
10	Control	2007	0	1	26	1	19	0	1	50	0	0	547	0	0	0	0	0	0	0	0
10	Control	2008	0	2	34	0	43	0	1	51	0	0	7	2	0	0	1	0	0	0	0
11	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	13
11	Removal	2005	0	0	0	0	0	0	0	0	0	7	35	0	0	0	10	0	0	0	14
11	Removal	2006	0	0	2	0	0	0	0	0	0	1	1	0	0	0	11	0	0	0	9
11	Removal	2007	1	0	0	0	2	0	0	0	0	100	0	0	0	0	9	0	0	0	20
11	Removal	2008	0	1	0	0	1	0	0	1	0	0	0	0	0	0	5	0	0	0	22
11	Control	2004	0	2	2	0	22	0	0	0	0	17	345	0	0	0	0	0	0	0	0

site	Treatment	Year	Cyperaceae sp	Cyperaceae (same within site)	*Acalypha gracilens*	*Ageratina altissima/aromatica*	*Aletris lutea*	*Ambrosia artemisiifolia*	*Symphyotrichum adnatum*	*Symphyotrichum concolor*	*Symphyotrichum dumosum*	*Eurybia hemispherica*	*Symphyotrichum patens*	*Symphyotrichum praealtum*	*Ionactis linariifolius*	*Boltonia diffusa*	*Chrysopsis mariana*	*Cirsium horridulum*	*Conoclinium coelestinum*	*Diodia teres*	Diodia virginiana
8	Cov Cont	2008	0	0	11	0	0	1	0	0	33	0	0	0	0	1	0	0	30	0	0
8	Control	2004	0	0	45	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0
8	Control	2005	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8	Control	2006	0	0	11	0	0	0	0	0	19	0	0	0	0	0	0	0	3	0	0
8	Control	2007	0	0	4	0	0	0	0	0	17	0	0	0	0	0	0	0	1	0	0
8	Control	2008	0	0	19	0	0	0	0	0	31	0	0	0	0	2	0	0	1	0	0
9	Control	2004	0	0	0	0	0	0	0	0	19	0	0	0	0	5	2	0	0	0	0
9	Control	2005	0	0	0	0	0	0	0	0	6	0	0	0	0	6	2	0	0	0	0
9	Control	2006	0	0	0	0	0	0	0	0	15	0	0	0	0	3	1	0	0	0	0
9	Control	2007	0	0	1	0	0	0	0	0	12	0	0	0	0	4	11	0	0	0	0
9	Control	2008	0	0	2	0	0	0	0	0	22	0	0	0	0	9	16	0	0	0	0
9	Removal	2004	0	0	1	0	0	0	13	0	15	0	0	0	0	0	5	0	0	0	0
9	Removal	2005	0	10	0	0	1	0	4	0	16	0	0	0	0	0	15	0	0	0	0
9	Removal	2006	0	2	0	0	0	0	4	0	13	0	0	0	0	0	12	0	0	0	0
9	Removal	2007	0	1	0	1	0	0	2	0	17	0	0	0	0	0	14	0	0	0	0
9	Removal	2008	0	1	0	0	0	0	5	0	24	0	0	0	0	0	15	0	0	0	0
9	Cov Cont	2004	0	0	12	0	0	0	0	0	31	3	0	0	0	3	1	0	0	0	0
9	Cov Cont	2005	0	3	0	0	0	0	0	0	20	1	0	0	0	3	1	0	0	0	0
9	Cov Cont	2006	0	0	1	0	0	0	0	0	19	2	0	0	0	0	1	0	0	0	0
9	Cov Cont	2007	0	0	4	3	0	0	0	0	13	10	0	0	0	0	2	0	0	0	0
9	Cov Cont	2008	0	0	0	0	0	0	0	0	26	10	0	0	0	0	2	0	0	0	0
10	Cov Cont	2004	0	0	0	0	0	0	0	0	27	0	0	0	0	2	0	0	0	0	3
10	Cov Cont	2005	0	0	17	0	0	0	0	0	35	0	0	0	0	6	0	0	0	0	0
10	Cov Cont	2006	0	0	0	0	0	0	0	0	28	0	0	0	0	3	0	0	0	0	0
10	Cov Cont	2007	0	0	33	0	0	0	0	0	32	0	0	0	0	9	0	0	0	0	0
10	Cov Cont	2008	0	0	1	0	0	0	0	0	38	0	0	0	0	3	0	0	0	0	0
10	Removal	2004	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	7
10	Removal	2005	0	0	23	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	17
10	Removal	2006	0	0	2	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	7
10	Removal	2007	0	0	38	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	7
10	Removal	2008	0	0	2	0	0	0	0	0	19	0	0	0	0	0	0	0	0	0	1
10	Control	2004	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	7
10	Control	2005	0	0	15	0	0	0	0	0	29	0	0	0	0	0	0	0	0	0	16
10	Control	2006	0	0	5	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	6
10	Control	2007	0	0	12	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	6
10	Control	2008	0	0	0	1	0	0	0	0	30	0	0	0	0	0	0	0	0	0	5
11	Removal	2004	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11	Removal	2005	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2007	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Drosera brevifolia*	*Elephantopus tomentosus*	*Eryngium integrifolium*	*Eryngium yuccifolium*	*Eupatorium album*	*Eupatorium capillifolium*	*Euphorbia corollata*	*Eupatorium perfoliatum*	*Eupatorium rotundifolium*	*Eupatorium semiserratum*	*Gelsemium sempervirens*	*Pseudognaphalium obtusifolium*	*Gratiola pilosa*	*Helianthus angustifolius*	*Helenium flexuosum*	*Houstonia procumbens*	*Helianthus radula*	*Hibiscus aculeatus*	*Hieracium gronovii*
8	Cov Cont	2008	1	0	0	0	0	0	0	3	43	3	0	0	0	23	0	0	0	0	0
8	Control	2004	0	0	0	0	0	0	0	0	24	1	0	0	0	27	0	0	0	0	0
8	Control	2005	0	0	0	0	0	0	0	2	6	3	0	0	2	26	0	0	0	0	0
8	Control	2006	0	0	0	0	0	0	0	0	9	1	0	0	1	46	0	0	0	0	0
8	Control	2007	0	0	0	0	0	0	0	0	6	0	0	0	15	19	0	0	0	0	0
8	Control	2008	0	0	0	0	0	0	0	0	77	1	0	0	18	37	0	0	0	0	0
9	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
9	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0
9	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
9	Control	2007	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0
9	Control	2008	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	9	0	0
9	Removal	2004	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9	Removal	2005	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
9	Removal	2006	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9	Removal	2007	0	2	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
9	Removal	2008	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
9	Cov Cont	2004	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
9	Cov Cont	2005	1	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	7	0	0
9	Cov Cont	2006	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
9	Cov Cont	2007	16	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
9	Cov Cont	2008	3	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0
10	Cov Cont	2004	0	0	0	0	0	0	0	0	1	0	9	0	0	16	1	0	0	0	0
10	Cov Cont	2005	0	0	0	0	0	0	0	0	12	0	6	0	0	27	2	0	0	0	0
10	Cov Cont	2006	0	0	0	0	0	0	0	0	5	0	18	0	0	25	2	0	0	0	0
10	Cov Cont	2007	0	0	0	0	0	0	0	0	19	0	18	0	0	33	2	0	0	0	0
10	Cov Cont	2008	0	0	0	0	0	0	0	0	14	0	20	0	0	43	0	0	0	0	2
10	Removal	2004	0	0	0	0	0	0	0	0	4	0	21	0	0	13	0	0	0	0	0
10	Removal	2005	0	0	0	0	0	0	0	0	18	0	21	0	0	21	0	0	0	0	0
10	Removal	2006	0	0	0	0	0	0	0	0	6	0	24	0	0	9	0	0	0	0	0
10	Removal	2007	0	0	0	0	0	0	0	0	33	0	28	0	0	8	0	0	0	0	0
10	Removal	2008	0	0	0	0	0	0	0	0	17	0	39	0	0	12	0	0	0	0	0
10	Control	2004	0	2	0	0	0	0	0	0	2	0	21	0	0	11	0	0	0	0	0
10	Control	2005	0	2	0	0	0	0	0	0	3	0	16	0	0	10	1	0	0	0	0
10	Control	2006	0	4	0	0	0	0	0	0	1	0	16	0	0	1	0	0	0	0	0
10	Control	2007	0	2	0	0	0	0	0	0	3	0	17	0	0	9	0	0	0	0	0
10	Control	2008	0	1	0	0	0	0	0	0	1	0	22	0	0	12	0	0	0	0	0
11	Removal	2004	0	0	0	0	0	0	0	0	2	0	0	0	0	4	0	0	0	0	0
11	Removal	2005	0	0	0	0	0	0	0	0	4	0	0	0	0	3	0	0	0	0	0
11	Removal	2006	0	0	0	0	0	0	0	0	2	0	0	0	0	6	0	0	0	0	0
11	Removal	2007	0	0	0	0	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0
11	Removal	2008	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
11	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

site	Treatment	Year	*Hyptis alata*	*Hypericum crux-andreae*	*Hypericum hypericoides*	*Hypoxis juncea*	*Hypericum setosum*	*Lactuca graminifolia*	*Lechea minor*	*Liatris* sp	*Linum medium*	*Lobelia brevifolia*	*Lobelia puberula*	*Ludwigia hirtella*	*Mecardonia acuminata*	*Mitchella repens*	*Mitreola sessilifolia*	Unknown Forb Species A	*Oxalis corniculata*	*Phyllanthus caroliniensis*	*Phlox divaricata*
8	Cov Cont	2008	1	0	0	0	0	0	0	0	0	0	4	0	6	0	0	0	15	990	0
8	Control	2004	125	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	4	526	0
8	Control	2005	56	1	0	0	2	0	0	0	0	0	2	12	0	0	3	0	2	855	0
8	Control	2006	12	1	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	935	0
8	Control	2007	11	0	0	0	2	0	0	0	0	0	2	3	0	0	2	0	1	144	0
8	Control	2008	37	0	0	0	1	0	0	0	0	0	4	3	0	0	2	0	4	948	0
9	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2005	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
9	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2004	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2005	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2006	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2007	0	4	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2008	0	2	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2004	0	3	0	0	13	0	0	0	0	0	0	0	0	0	0	0	3	17	0
10	Cov Cont	2005	0	2	0	0	10	0	0	0	0	0	0	0	0	0	0	0	3	59	0
10	Cov Cont	2006	0	5	0	0	12	0	0	0	0	0	0	0	0	0	0	0	3	8	0
10	Cov Cont	2007	0	2	0	0	34	0	0	0	0	0	0	0	0	0	0	0	5	68	0
10	Cov Cont	2008	0	7	0	0	5	0	0	0	0	0	0	0	0	0	1	1	2	43	0
10	Removal	2004	0	3	0	0	8	0	0	0	0	0	0	0	0	0	0	0	8	3	0
10	Removal	2005	0	2	0	0	17	0	0	0	0	0	0	0	0	0	0	0	6	7	0
10	Removal	2006	0	2	0	0	15	0	0	0	0	0	0	0	0	0	0	0	5	4	0
10	Removal	2007	0	6	0	0	24	0	0	0	0	0	0	0	0	0	0	0	13	33	0
10	Removal	2008	0	10	0	0	7	0	0	0	0	0	0	0	0	0	0	0	15	35	0
10	Control	2004	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	117	0
10	Control	2005	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	170	0
10	Control	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	8	0
10	Control	2007	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	209	0
10	Control	2008	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	94	0
11	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2005	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Physalis virginiana*	*Pityopsis graminifolia*	*Pluchea foetida*	*Polygala nana*	*Pteridium aquilinum*	*Pycnanthemum albescens*	*Rhexia alifanus*	*Rhexia mariana*	*Ruellia caroliniensis /pedunculata*	*Rudbeckia hirta*	*Rubus trivialis*	*Scutellaria integrifolia*	*Solanum carolinense*	*Solidago odora*	*Solidago rugosa*	*Trachelospermum difforme*	*Trichostema* sp	*Tragia smallii*	Unknown Forb Species B
8	Cov Cont	2008	0	0	31	0	0	9	0	0	6	0	0	1	5	0	41	0	0	0	0
8	Control	2004	1	0	0	0	0	0	0	0	0	0	0	2	0	0	5	0	0	0	0
8	Control	2005	0	0	3	0	0	0	0	0	0	0	0	1	0	0	16	0	0	0	0
8	Control	2006	0	0	1	0	0	0	0	0	0	0	1	1	0	0	5	0	0	0	0
8	Control	2007	0	0	2	0	0	0	0	1	0	0	1	1	0	0	11	0	0	0	0
8	Control	2008	0	0	4	0	0	0	0	7	0	0	0	0	0	0	15	0	0	0	0
9	Control	2004	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2005	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0
9	Control	2006	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
9	Control	2007	0	7	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	4	0
9	Control	2008	0	15	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	5	0
9	Removal	2004	0	25	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
9	Removal	2005	0	39	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
9	Removal	2006	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
9	Removal	2007	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
9	Removal	2008	0	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
9	Cov Cont	2004	0	10	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
9	Cov Cont	2005	0	19	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
9	Cov Cont	2006	0	12	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0
9	Cov Cont	2007	0	23	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0
9	Cov Cont	2008	0	29	0	0	0	0	0	0	0	4	0	0	0	3	0	0	0	0	0
10	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	6	0	2	9	0	0	0	0
10	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	2	2	0	3	12	0	0	0	0
10	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	2	3	0	2	7	0	0	0	0
10	Cov Cont	2007	0	0	0	0	0	1	0	0	0	0	8	7	0	5	4	0	0	0	0
10	Cov Cont	2008	0	0	0	0	0	4	0	0	0	0	1	3	0	5	5	0	0	0	0
10	Removal	2004	0	0	0	0	0	4	0	0	0	0	1	2	0	12	9	0	0	0	0
10	Removal	2005	0	0	0	0	0	5	0	0	0	0	2	0	0	5	12	0	0	0	0
10	Removal	2006	0	0	0	0	0	3	0	0	0	0	1	0	0	17	7	0	0	0	0
10	Removal	2007	0	0	0	1	0	8	0	0	0	0	1	1	0	13	8	0	0	0	0
10	Removal	2008	0	0	0	1	0	6	0	0	1	0	0	3	0	11	9	0	0	0	0
10	Control	2004	0	0	0	0	0	1	0	0	0	2	1	0	0	6	6	0	0	0	0
10	Control	2005	0	0	0	0	0	0	0	0	0	2	1	0	0	2	7	0	0	0	0
10	Control	2006	0	0	0	0	0	0	0	0	0	2	0	0	0	3	4	0	0	0	0
10	Control	2007	0	0	0	0	0	0	0	0	0	1	1	0	0	3	8	0	0	0	0
10	Control	2008	0	0	0	0	0	0	0	0	0	2	3	0	0	1	8	0	0	0	0
11	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
11	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
11	Removal	2007	0	0	0	0	0	0	0	0	0	0	2	0	0	0	6	0	0	0	0
11	Removal	2008	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	0	0	0
11	Control	2004	0	0	0	0	0	0	0	0	7	0	5	0	0	0	0	0	0	0	0

site	Treatment	Year	Unknown Forb Species C	Unknown Forb Species D	Unknown Forb Species E	Unknown Forb Species F	Unknown Forb Species G	Unknown Forb Species H	Unidentified Forbs	Unknown Forb Species I	Unknown Forb Species J	Unknown Forb Species K	Unidentified basal rosette	*Viola ×primulifolia*	*Viola septemloba*	*Andropogon gyrans*	*Aristida purpurascens*	*Chasmanthium laxum*	*Ctenium aromaticum*	*Agrostis* sp	*Gymnopogon brevifolius*
8	Cov Cont	2008	0	0	0	0	0	0	0	0	5	101	0	2	0	2	0	0	0	0	0
8	Control	2004	0	0	0	0	0	0	14	0	0	0	0	2	0	0	0	0	0	0	0
8	Control	2005	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0
8	Control	2006	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0
8	Control	2007	0	0	0	0	0	0	0	0	0	0	0	9	0	15	0	0	0	0	0
8	Control	2008	0	0	0	0	0	0	0	0	0	0	0	15	0	16	0	0	0	0	0
9	Control	2004	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	2	20
9	Control	2005	0	0	0	0	0	0	0	0	0	0	1	0	1	0	7	0	0	0	23
9	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	11
9	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	2	8
9	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	0	0	2	13
9	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2004	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2005	0	0	0	0	0	0	1	0	0	0	0	0	0	10	10	0	0	0	0
9	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	17	23	0	0	0	2
9	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	31	24	0	0	0	0
9	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	4	22	0	0	0	1
10	Cov Cont	2004	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
10	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
10	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
10	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	27	0	0	0	0	0	0	7
10	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	45
10	Removal	2004	0	0	0	0	0	0	2	0	0	0	0	9	0	0	0	0	0	0	0
10	Removal	2005	0	0	0	0	0	0	1	0	0	0	0	5	0	0	0	0	0	0	0
10	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0
10	Removal	2007	0	0	0	0	0	0	1	0	0	0	1	27	0	0	0	0	0	0	0
10	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0
10	Control	2004	0	1	0	0	0	0	3	1	0	0	0	32	0	0	0	0	0	0	1
10	Control	2005	0	0	0	0	0	0	0	1	0	0	0	22	0	0	0	0	0	0	2
10	Control	2006	0	0	0	0	0	0	0	0	0	0	0	51	0	0	0	0	0	0	1
10	Control	2007	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	1
10	Control	2008	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0
11	Removal	2004	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2004	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Paspalum floridanum*	*Paspalum notatum*	*Schizachyrium scoparium*	*Schizachyrium tenerum*	Unknown Grass A	Unknown Grass B	Unknown Grass C	Unknown Grass D	Unknown Grass E	Unknown Grass F	Unidentified Poaceae	Poaceae (same within site)	Unknown Grass G	*Baptisia bracteata*	*Centrosema virginianum*	*Chamaecrista nictitans*	*Clitoria mariana*	*Crotalaria rotundifolia*	*Desmodium ciliare*
8	Cov Cont	2008	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Control	2004	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Control	2005	0	0	17	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8	Control	2006	0	0	34	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0
8	Control	2007	0	0	44	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8	Control	2008	0	0	43	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
9	Control	2004	0	0	60	262	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2005	0	0	193	489	10	0	4	0	0	0	0	2	0	0	0	0	0	0	0
9	Control	2006	0	0	135	785	16	0	4	0	13	0	0	3	0	0	0	0	0	0	0
9	Control	2007	0	0	135	1172	24	0	7	0	0	0	0	4	0	0	0	0	0	0	0
9	Control	2008	0	0	102	1474	48	0	8	0	0	0	0	1	0	0	0	0	0	0	0
9	Removal	2004	0	0	33	551	9	0	0	0	14	0	0	0	0	0	0	0	0	0	0
9	Removal	2005	0	0	59	562	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0
9	Removal	2006	0	0	46	1565	0	0	0	0	9	0	0	17	0	0	0	0	0	0	0
9	Removal	2007	0	0	35	1862	0	0	0	0	9	0	0	35	0	0	0	0	0	0	0
9	Removal	2008	1	0	66	2347	0	0	0	0	14	0	0	39	0	0	0	0	0	0	0
9	Cov Cont	2004	0	0	12	308	1	0	0	0	7	0	0	7	0	0	0	0	0	0	0
9	Cov Cont	2005	0	0	11	360	8	0	0	0	18	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2006	0	0	22	883	12	0	0	0	0	0	0	7	0	0	0	0	0	0	0
9	Cov Cont	2007	0	0	7	1399	23	0	0	0	0	0	0	17	0	0	0	0	0	0	0
9	Cov Cont	2008	0	0	11	1943	34	0	0	0	24	0	0	16	0	0	0	0	0	0	0
10	Cov Cont	2004	4	0	65	6	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
10	Cov Cont	2005	10	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2006	6	0	59	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2007	72	0	18	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10	Cov Cont	2008	10	0	92	26	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
10	Removal	2004	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10	Removal	2005	0	0	19	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
10	Removal	2006	0	0	33	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
10	Removal	2007	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10	Removal	2008	0	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Control	2004	0	0	128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Control	2005	0	0	123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Control	2006	0	0	99	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
10	Control	2007	0	0	102	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
10	Control	2008	0	0	116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2004	0	0	68	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2005	0	0	72	79	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
11	Removal	2006	0	0	197	159	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
11	Removal	2007	0	0	100	389	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0
11	Removal	2008	0	0	131	334	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0
11	Control	2004	22	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Desmodium lineatum*	*Desmodium tenuifolium*	*Galactia erecta*	*Galactia volubilis*	*Lespedeza capitata*	*Lespedeza repens*	*Rhynchosia reniformis*	Unidentified Fabaceae seedlings	*Stylosanthes biflora*	*Strophostyles umbellata*	*Tephrosia florida*	*Tephrosia spicata*	*Tephrosia onobrychoides/hispidula*	Fabaceae sp	Fabaceae vine	Fabaceae	*Pinus palustris*	*Pinus taeda*	*Acer rubrum*
8	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Control	2004	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0
8	Control	2005	0	0	0	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0
8	Control	2006	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0
8	Control	2007	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0
8	Control	2008	0	0	0	0	0	0	0	0	109	0	0	0	0	0	0	0	0	0	0
9	Control	2004	51	0	0	0	0	0	0	0	114	0	0	0	0	0	0	0	0	0	0
9	Control	2005	36	0	0	0	0	0	0	0	114	0	0	0	0	0	0	0	0	0	0
9	Control	2006	41	0	0	0	0	0	0	0	114	0	0	0	0	0	0	0	0	0	0
9	Control	2007	15	0	0	0	0	2	0	0	14	0	0	2	0	0	0	0	0	1	0
9	Control	2008	41	0	0	0	0	2	0	0	188	0	0	4	0	0	0	0	0	0	0
9	Removal	2004	10	0	0	0	0	0	0	0	130	0	0	0	0	0	0	0	0	0	0
9	Removal	2005	9	0	0	0	0	0	0	0	128	0	0	0	0	1	0	0	1	1	0
9	Removal	2006	3	0	0	0	0	0	0	0	175	0	0	0	0	0	0	0	0	0	0
9	Removal	2007	7	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0
9	Removal	2008	0	0	0	0	0	0	0	0	171	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2004	11	0	0	0	0	0	0	0	30	0	0	16	0	0	0	0	0	0	0
9	Cov Cont	2005	20	0	0	0	0	3	0	0	26	0	0	16	0	0	0	0	0	0	0
9	Cov Cont	2006	16	0	0	0	0	1	0	0	40	0	0	10	0	0	0	0	0	0	0
9	Cov Cont	2007	5	0	0	0	0	5	0	0	7	0	0	9	0	0	0	0	1	1	0
9	Cov Cont	2008	6	0	0	0	0	3	0	0	70	0	1	18	0	0	0	0	0	0	0
10	Cov Cont	2004	0	0	0	0	0	1	0	0	24	0	0	3	0	0	0	1	5	2	0
10	Cov Cont	2005	0	1	0	0	0	1	0	0	51	0	0	5	0	0	0	1	0	0	0
10	Cov Cont	2006	1	1	0	0	0	1	0	0	20	0	0	3	0	0	0	1	0	1	0
10	Cov Cont	2007	1	0	0	0	0	45	0	0	9	0	0	1	0	0	0	2	0	0	0
10	Cov Cont	2008	0	0	0	0	0	1	0	0	25	0	0	1	0	0	0	2	0	0	3
10	Removal	2004	3	0	0	0	0	0	0	1	9	0	0	3	0	0	0	0	0	1	0
10	Removal	2005	2	0	0	0	0	1	0	0	32	0	0	5	0	0	0	0	0	0	0
10	Removal	2006	3	0	0	0	0	1	0	0	11	0	0	2	0	0	0	0	0	1	0
10	Removal	2007	6	0	0	0	0	0	0	0	19	0	0	9	0	0	0	0	0	0	0
10	Removal	2008	4	1	0	0	0	0	0	0	3	0	0	4	0	0	0	0	0	0	1
10	Control	2004	3	0	0	0	0	0	0	0	10	0	0	1	0	0	0	0	4	3	0
10	Control	2005	4	0	0	0	0	0	0	0	16	0	0	1	0	0	0	0	0	0	0
10	Control	2006	5	0	0	0	0	0	0	0	13	0	0	1	0	0	0	0	0	0	0
10	Control	2007	5	0	0	0	0	0	0	0	16	0	0	1	0	0	0	0	0	0	0
10	Control	2008	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0
11	Removal	2004	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	10	0	0
11	Removal	2005	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
11	Removal	2006	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
11	Removal	2007	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0
11	Removal	2008	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
11	Control	2004	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0

site	Treatment	Year	*Aralia spinosa*	*Callicarpa americana*	*Campsis radicans*	*Diospyros virginiana*	*Gaylussacia dumosa*	*Ilex glabra*	*Ilex vomitoria*	*Ligustrum sinense*	*Liquidambar styraciflua*	*Lonicera japonica*	*Malus angustifolia*	*Morella cerifera*	*Nyssa sylvatica*	*Parthenocissus quinquefolia*	*Prunus serotina*	*Quercus falcata*	*Quercus nigra*	*Quercus virginiana*	*Rhus copallinum*
8	Cov Cont	2008	0	1	0	0	0	10	0	21	5	0	0	0	0	0	0	0	0	0	0
8	Control	2004	0	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	3
8	Control	2005	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	1
8	Control	2006	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	3
8	Control	2007	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	1
8	Control	2008	0	6	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	3
9	Control	2004	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1
9	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2004	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
9	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
9	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2004	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2005	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2006	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2007	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2008	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
10	Removal	2004	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2005	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2006	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2007	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2008	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0
10	Control	2004	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
10	Control	2005	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
10	Control	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
10	Control	2007	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
10	Control	2008	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
11	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Rubus cuneifolius*	*Sassafras albidum*	*Triadica sebifera*	*Smilax bona-nox*	*Smilax glauca*	*Smilax rotundifolia*	*Toxicodendron radicans*	Unidentified *Vaccineum*	*Vaccinium darrowii*	*Vaccinium elliottii*	*Vaccinium arboreum*	*Vaccinium stamineum*
8	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
8	Control	2004	0	0	0	0	0	0	0	0	0	0	1	0
8	Control	2005	0	0	0	0	0	0	0	0	0	0	2	0
8	Control	2006	0	0	0	0	0	0	0	0	0	0	7	0
8	Control	2007	0	0	0	0	0	0	0	0	0	0	5	0
8	Control	2008	0	0	0	0	0	0	0	0	0	0	6	0
9	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0
9	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2005	0	0	0	0	1	0	0	0	0	0	0	0
9	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
9	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
9	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2004	1	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
10	Cov Cont	2008	1	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
10	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0
10	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
10	Control	2005	0	0	0	0	0	1	0	0	0	0	0	0
10	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0
10	Control	2007	0	0	0	1	0	0	0	0	0	0	0	0
10	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
11	Removal	2004	0	0	0	0	0	0	0	4	0	0	0	0
11	Removal	2005	0	1	0	0	0	0	0	2	0	0	0	0
11	Removal	2006	0	1	0	0	0	0	0	6	0	0	0	0
11	Removal	2007	0	0	0	0	0	0	0	4	0	0	0	0
11	Removal	2008	0	0	0	0	0	0	0	8	0	0	0	0
11	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Dichanthelium aciculare*	*Dichanthelium acuminatum*	*Dichanthelium ensifolium*	*Dichanthelium laxiflorum*	Dichanthelium ovale	*Dichanthelium scoparium*	*Dichanthelium sphaerocarpon*	*Dichanthelium strigosum*	*Dichanthelium dichotomum*	*Panicum anceps*	*Panicum verrucosum*	*Panicum virgatum*	*Dichanthelium* seedlings	*Fimbristylis puberula*	*Rhynchospora glomerata*	*Rhynchospora rariflora*	*Scleria* sp	*Scleria ciliata*	*Scleria pauciflora*
11	Control	2005	0	0	0	0	5	0	0	0	0	41	144	0	0	0	0	0	0	0	0
11	Control	2006	0	0	0	0	15	0	0	0	0	30	69	0	0	0	0	0	0	0	0
11	Control	2007	0	1	0	0	13	0	0	0	0	29	200	0	0	0	0	0	0	0	0
11	Control	2008	0	1	0	0	23	0	0	0	0	30	16	0	0	0	0	0	0	0	0
11	Far Cont	2005	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0
11	Far Cont	2006	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	24	0
11	Far Cont	2007	0	2	2	0	7	0	1	0	0	0	1	2	0	0	0	0	0	20	0
11	Far Cont	2008	0	1	10	0	8	0	2	0	0	0	4	1	0	0	0	0	0	12	0
11	Cov Cont	2004	0	4	2	0	9	0	0	0	0	14	278	0	0	0	0	0	0	0	0
11	Cov Cont	2005	0	0	0	0	3	0	0	0	0	4	177	0	0	0	1	0	0	0	3
11	Cov Cont	2006	0	0	1	0	7	0	0	0	0	3	125	0	0	0	1	0	0	0	3
11	Cov Cont	2007	0	1	0	0	14	0	0	0	0	2	79	0	0	0	1	0	0	0	1
11	Cov Cont	2008	0	0	0	0	36	0	0	0	0	2	19	0	0	0	3	0	0	0	1
12	Control	2004	0	1	3	1	7	0	16	2	0	1	23	0	2	1	0	0	0	0	7
12	Control	2005	0	0	0	6	31	0	29	2	0	0	42	0	0	0	0	0	0	0	3
12	Control	2006	0	0	0	3	33	0	5	3	0	0	29	2	0	15	0	3	0	0	2
12	Control	2007	0	0	0	7	19	0	9	6	0	0	18	5	0	0	0	8	0	14	2
12	Control	2008	0	0	0	2	40	0	8	4	0	0	29	0	0	14	0	8	0	0	7
12	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12	Removal	2005	0	0	2	2	2	0	0	2	0	0	11	0	0	0	0	19	0	0	0
12	Removal	2006	0	0	0	3	1	0	1	0	0	0	1	0	0	0	0	0	0	0	5
12	Removal	2007	0	0	0	2	1	0	0	2	0	0	2	0	0	0	0	0	0	0	2
12	Removal	2008	0	1	0	9	2	0	0	0	0	0	28	0	0	2	0	0	0	0	7
12	Cov Cont	2004	0	1	2	0	31	0	0	8	0	12	24	0	0	0	0	0	0	0	0
12	Cov Cont	2005	0	2	24	2	31	0	4	8	0	10	24	0	0	0	2	6	0	5	7
12	Cov Cont	2006	0	1	2	0	17	0	0	2	0	4	6	0	0	0	4	2	0	6	4
12	Cov Cont	2007	0	3	5	0	6	0	4	14	0	7	11	0	0	0	4	9	0	2	1
12	Cov Cont	2008	0	4	4	0	28	0	3	11	0	10	39	0	0	0	9	1	0	0	12
13	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
13	Removal	2005	0	0	4	0	0	0	0	6	0	0	0	4	0	0	0	0	0	9	0
13	Removal	2006	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
13	Removal	2007	0	1	6	0	3	0	0	0	0	0	0	2	0	0	0	0	0	9	0
13	Removal	2008	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
13	Far Cont	2005	0	1	28	0	1	0	0	0	0	0	0	0	0	0	0	0	0	11	0
13	Far Cont	2006	0	1	18	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0
13	Far Cont	2007	0	2	26	0	3	0	1	0	0	0	0	0	0	0	0	0	0	12	0
13	Far Cont	2008	0	1	45	0	4	0	1	0	0	2	0	0	0	0	0	0	0	6	0
13	Cov Cont	2004	0	0	70	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2005	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
13	Cov Cont	2006	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2007	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
13	Cov Cont	2008	0	0	42	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0

site	Treatment	Year	Cyperaceae sp	Cyperaceae (same within site)	*Acalypha gracilens*	*Ageratina altissima/aromatica*	*Aletris lutea*	*Ambrosia artemisiifolia*	*Symphyotrichum adnatum*	*Symphyotrichum concolor*	*Symphyotrichum dumosum*	*Eurybia hemispherica*	*Symphyotrichum patens*	*Symphyotrichum praealtum*	*Ionactis linariifolius*	*Boltonia diffusa*	*Chrysopsis mariana*	*Cirsium horridulum*	*Conoclinium coelestinum*	*Diodia teres*	Diodia virginiana
11	Control	2005	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2008	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2005	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2007	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2004	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	1
11	Cov Cont	2005	0	0	5	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	3
11	Cov Cont	2006	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
11	Cov Cont	2007	0	0	5	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2008	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
12	Control	2004	0	0	6	0	0	3	0	0	2	0	0	0	0	2	0	0	0	0	2
12	Control	2005	0	0	0	0	0	0	0	0	4	0	0	0	0	8	0	0	0	0	0
12	Control	2006	0	0	8	0	0	1	0	0	10	0	0	0	0	8	0	0	0	0	0
12	Control	2007	0	0	1	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0
12	Control	2008	0	0	18	0	0	0	0	0	12	0	0	0	0	14	0	0	1	0	0
12	Removal	2004	0	0	4	0	0	1	30	0	0	0	0	0	0	0	0	0	1	0	2
12	Removal	2005	0	0	0	0	0	0	40	0	2	0	0	0	0	1	0	0	2	0	0
12	Removal	2006	0	0	3	0	0	0	80	0	1	0	0	0	0	1	0	0	0	0	0
12	Removal	2007	0	0	0	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0	0
12	Removal	2008	0	0	12	0	0	1	60	0	1	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2004	0	4	4	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	11
12	Cov Cont	2005	0	2	0	0	0	0	0	0	2	0	0	0	0	1	0	0	5	0	0
12	Cov Cont	2006	0	3	9	0	0	1	0	0	5	0	0	0	0	7	0	0	2	0	1
12	Cov Cont	2007	0	2	0	1	0	0	0	0	0	0	0	0	0	2	0	0	2	0	6
12	Cov Cont	2008	0	11	11	0	2	0	0	0	2	0	0	0	0	3	0	0	1	0	11
13	Removal	2004	0	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
13	Removal	2005	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
13	Removal	2006	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
13	Removal	2007	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
13	Removal	2008	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2005	0	0	7	0	0	0	62	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2006	0	0	1	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2007	0	0	11	0	0	0	54	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2008	0	0	7	0	0	0	46	0	2	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Drosera brevifolia*	*Elephantopus tomentosus*	*Eryngium integrifolium*	*Eryngium yuccifolium*	*Eupatorium album*	*Eupatorium capillifolium*	*Euphorbia corollata*	*Eupatorium perfoliatum*	*Eupatorium rotundifolium*	*Eupatorium semiserratum*	*Gelsemium sempervirens*	*Pseudognaphalium obtusifolium*	*Gratiola pilosa*	*Helianthus angustifolius*	*Helenium flexuosum*	*Houstonia procumbens*	*Helianthus radula*	*Hibiscus aculeatus*	*Hieracium gronovii*
11	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
11	Control	2006	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11	Control	2007	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11	Control	2008	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2005	0	0	0	0	0	0	0	0	0	1	7	0	0	1	0	0	0	0	0
11	Far Cont	2006	0	0	0	0	0	0	0	0	0	2	9	0	0	1	0	0	0	0	0
11	Far Cont	2007	0	0	0	0	0	0	0	0	0	2	6	0	0	1	0	0	0	0	0
11	Far Cont	2008	0	0	0	0	0	0	0	0	0	2	12	0	0	1	0	0	0	0	0
11	Cov Cont	2004	0	0	0	0	0	0	0	0	1	4	0	1	0	63	0	0	0	0	0
11	Cov Cont	2005	0	0	0	0	0	0	0	0	0	7	0	0	0	49	0	0	0	0	0
11	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0
11	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0	0	0	0	0
11	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0	0	0
12	Control	2004	0	0	0	0	0	0	0	0	0	3	0	0	0	18	0	0	0	0	0
12	Control	2005	0	0	0	0	0	0	0	0	0	1	0	0	0	16	0	0	0	0	0
12	Control	2006	0	0	0	0	0	0	0	0	0	4	0	0	0	15	0	0	0	0	0
12	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0
12	Control	2008	0	0	0	0	0	0	0	0	1	3	0	0	0	21	0	0	0	0	0
12	Removal	2004	0	0	0	0	0	0	0	0	2	0	0	0	0	26	0	0	0	0	0
12	Removal	2005	0	0	0	0	0	0	0	0	0	1	0	0	0	38	0	0	0	0	0
12	Removal	2006	0	0	0	0	0	0	0	0	0	1	0	0	0	47	0	0	0	0	0
12	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0
12	Removal	2008	0	0	0	0	0	0	0	0	2	0	0	0	0	18	0	0	0	0	0
12	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	86	0	0	0	0	0
12	Cov Cont	2005	0	0	0	0	0	0	0	1	0	0	0	1	0	52	1	0	0	0	0
12	Cov Cont	2006	0	0	0	0	0	0	0	0	0	1	0	0	0	45	0	0	0	0	0
12	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0
12	Cov Cont	2008	0	0	0	0	0	0	0	0	1	2	0	0	0	25	0	0	0	0	0
13	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
13	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
13	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
13	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
13	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
13	Far Cont	2005	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2006	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2007	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2008	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
13	Cov Cont	2004	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2005	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2006	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2007	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2008	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Hyptis alata*	*Hypericum crux-andreae*	*Hypericum hypericoides*	*Hypoxis juncea*	*Hypericum setosum*	*Lactuca graminifolia*	*Lechea minor*	*Liatris* sp	*Linum medium*	*Lobelia brevifolia*	*Lobelia puberula*	*Ludwigia hirtella*	*Mecardonia acuminata*	*Mitchella repens*	*Mitreola sessilifolia*	Unknown Forb Species A	*Oxalis corniculata*	*Phyllanthus caroliniensis*	*Phlox divaricata*
11	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2005	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2006	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	783	0
12	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	44	0
12	Control	2006	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2004	0
12	Control	2007	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	6	447	0
12	Control	2008	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	2247	0
12	Removal	2004	2	1	0	0	0	0	0	0	0	0	0	1	4	0	0	0	2	1281	0
12	Removal	2005	0	1	0	0	0	0	0	0	0	0	2	0	5	0	0	0	1	185	0
12	Removal	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1558	0
12	Removal	2007	1	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	148	0
12	Removal	2008	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	2021	0
12	Cov Cont	2004	20	0	0	0	0	0	0	0	0	0	1	2	49	0	0	0	2	832	0
12	Cov Cont	2005	14	0	0	0	0	0	0	0	0	0	8	5	30	0	1	0	0	170	0
12	Cov Cont	2006	14	0	0	0	0	0	0	0	0	0	8	1	2	0	0	0	1	1889	0
12	Cov Cont	2007	16	0	0	0	0	0	0	0	0	0	1	0	4	0	1	0	6	299	0
12	Cov Cont	2008	50	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	4	1829	0
13	Removal	2004	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2005	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2006	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2007	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2008	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2005	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2007	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2008	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2005	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2008	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Physalis virginiana*	*Pityopsis graminifolia*	*Pluchea foetida*	*Polygala nana*	*Pteridium aquilinum*	*Pycnanthemum albescens*	*Rhexia alifanus*	*Rhexia mariana*	*Ruellia caroliniensis /pedunculata*	*Rudbeckia hirta*	*Rubus trivialis*	*Scutellaria integrifolia*	*Solanum carolinense*	*Solidago odora*	*Solidago rugosa*	*Trachelospermum difforme*	*Trichostema* sp	*Tragia smallii*	Unknown Forb Species B
11	Control	2005	0	0	0	0	0	0	0	0	9	0	4	0	0	0	0	0	0	0	0
11	Control	2006	0	0	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0
11	Control	2007	0	0	0	0	0	0	0	0	5	0	6	0	0	0	0	0	0	0	0
11	Control	2008	0	0	0	0	0	0	0	0	6	0	4	0	0	0	0	0	0	0	0
11	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
11	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	2	0
11	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
11	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	2	0
11	Cov Cont	2004	1	0	0	0	0	0	0	0	0	0	12	0	0	1	0	0	0	0	0
11	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0
11	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0
11	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	0	0	0
11	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0
12	Control	2004	0	0	0	0	0	0	0	0	0	4	0	0	0	2	61	0	0	0	0
12	Control	2005	0	0	0	0	0	0	0	0	2	10	1	0	0	1	57	0	0	0	0
12	Control	2006	0	0	0	0	0	0	0	0	3	3	0	0	0	4	77	0	0	0	0
12	Control	2007	0	0	0	0	0	0	0	0	0	4	0	0	0	1	59	0	0	0	0
12	Control	2008	0	0	0	0	0	0	0	0	3	9	0	0	0	2	73	0	0	0	0
12	Removal	2004	0	0	0	0	0	0	0	0	2	1	1	0	0	0	27	0	0	0	0
12	Removal	2005	0	0	0	0	0	1	0	0	4	1	1	0	0	0	31	0	0	0	0
12	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	0
12	Removal	2007	0	0	0	0	1	0	0	0	0	0	0	0	0	0	30	0	0	0	0
12	Removal	2008	0	0	0	0	1	0	0	0	2	0	0	0	0	0	68	0	0	0	0
12	Cov Cont	2004	0	0	0	0	0	0	0	0	0	1	8	2	0	0	38	0	0	0	0
12	Cov Cont	2005	0	0	1	0	0	1	0	0	1	1	2	5	0	0	54	0	0	0	0
12	Cov Cont	2006	0	0	0	0	0	1	0	0	0	2	2	5	0	0	49	0	0	0	0
12	Cov Cont	2007	0	0	0	0	0	2	0	0	1	0	4	1	0	0	32	0	0	0	0
12	Cov Cont	2008	0	0	0	0	0	4	0	0	2	0	4	0	0	0	51	0	0	0	0
13	Removal	2004	0	0	0	0	0	0	0	0	0	1	0	0	0	51	0	0	0	5	0
13	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	4	0
13	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0
13	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	3	0
13	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	3	0
13	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0
13	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	18	0	0	2	0	0	0	0	0
13	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	34	0	0	0	0	0	0	0	0
13	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0
13	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0
13	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
13	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
13	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
13	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0

site	Treatment	Year	Unknown Forb Species C	Unknown Forb Species D	Unknown Forb Species E	Unknown Forb Species F	Unknown Forb Species G	Unknown Forb Species H	Unidentified Forbs	Unknown Forb Species I	Unknown Forb Species J	Unknown Forb Species K	Unidentified basal rosette	*Viola ×primulifolia*	*Viola septemloba*	*Andropogon gyrans*	*Aristida purpurascens*	*Chasmanthium laxum*	*Ctenium aromaticum*	*Agrostis* sp	*Gymnopogon brevifolius*
11	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2004	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2004	0	0	1	0	0	0	5	0	0	0	0	4	0	0	0	0	0	0	0
12	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
12	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
12	Removal	2004	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
12	Removal	2005	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0
12	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Removal	2007	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
12	Removal	2008	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2004	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	4
12	Cov Cont	2005	0	0	1	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0
12	Cov Cont	2006	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2007	0	0	1	0	0	0	0	0	1	0	0	0	0	20	0	0	0	0	0
12	Cov Cont	2008	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
13	Removal	2004	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2005	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
13	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
13	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2004	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Paspalum floridanum*	*Paspalum notatum*	*Schizachyrium scoparium*	*Schizachyrium tenerum*	Unknown Grass A	Unknown Grass B	Unknown Grass C	Unknown Grass D	Unknown Grass E	Unknown Grass F	Unidentified Poaceae	Poaceae (same within site)	Unknown Grass G	*Baptisia bracteata*	*Centrosema virginianum*	*Chamaecrista nicitans*	*Clitoria mariana*	*Crotalaria rotundifolia*	*Desmodium ciliare*
11	Control	2005	6	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2006	5	0	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2007	27	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2008	2	0	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2005	0	0	23	72	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11	Far Cont	2006	0	0	28	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2007	0	0	37	174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2008	0	0	45	133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2004	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2005	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2006	0	0	22	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
11	Cov Cont	2007	0	0	23	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0
11	Cov Cont	2008	0	0	65	0	0	0	0	0	0	71	0	0	0	0	0	0	0	0	0
12	Control	2004	0	0	101	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
12	Control	2005	0	0	148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2006	0	0	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2007	0	0	158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2008	0	0	202	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
12	Removal	2004	0	0	94	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
12	Removal	2005	0	0	257	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
12	Removal	2006	0	0	240	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
12	Removal	2007	0	0	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Removal	2008	0	0	204	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
12	Cov Cont	2004	0	0	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2005	0	0	210	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
12	Cov Cont	2006	0	0	156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2007	0	0	202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2008	0	0	244	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2004	3	0	12	240	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0
13	Removal	2005	2	0	0	493	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2006	5	0	0	1031	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2007	4	0	1	1296	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2008	5	0	0	1298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2005	0	0	6	643	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2006	0	0	6	1040	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2007	0	0	5	1496	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2008	0	0	9	1465	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2004	0	0	1	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2005	0	0	0	828	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2006	0	0	0	961	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2007	0	0	0	1686	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2008	0	0	0	1774	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Desmodium lineatum*	*Desmodium tenuifolium*	*Galactia erecta*	*Galactia volubilis*	*Lespedeza capitata*	*Lespedeza repens*	*Rhynchosia reniformis*	Unidentified Fabaceae seedlings	*Stylosanthes biflora*	*Strophostyles umbellata*	*Tephrosia florida*	*Tephrosia spicata*	*Tephrosia onobrychoides/hispidula*	Fabaceae sp	Fabaceae vine	Fabaceae	*Pinus palustris*	*Pinus taeda*	*Acer rubrum*
11	Control	2005	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2007	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2008	0	0	0	0	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2005	4	0	0	0	0	4	0	6	12	0	0	2	0	0	0	0	2	0	0
11	Far Cont	2006	2	0	1	0	0	3	0	0	2	0	0	2	0	0	0	0	2	0	0
11	Far Cont	2007	1	0	2	0	0	3	0	1	8	0	0	8	0	0	0	0	2	0	0
11	Far Cont	2008	3	0	3	1	0	4	0	0	1	0	0	6	0	0	0	0	2	0	0
11	Cov Cont	2004	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	3	0	0
11	Cov Cont	2005	0	0	0	0	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0
11	Cov Cont	2006	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0
11	Cov Cont	2007	0	0	0	0	0	2	0	0	1	7	2	0	0	0	0	0	0	0	0
11	Cov Cont	2008	0	0	0	0	0	2	0	0	0	9	1	0	0	0	0	0	0	1	0
12	Control	2004	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0
12	Control	2005	0	0	0	0	0	0	0	0	39	0	0	0	0	0	0	0	0	0	0
12	Control	2006	0	0	0	0	0	0	0	0	36	1	0	0	0	0	0	0	0	0	0
12	Control	2007	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0
12	Control	2008	0	0	0	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0
12	Removal	2004	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0
12	Removal	2005	0	0	0	0	1	0	0	0	38	0	0	0	0	0	0	0	0	0	0
12	Removal	2006	0	0	0	0	1	0	0	0	15	0	0	0	0	0	0	0	0	0	0
12	Removal	2007	0	0	0	0	2	0	0	0	14	0	0	0	0	0	0	0	0	0	0
12	Removal	2008	0	0	0	0	2	0	0	0	46	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
12	Cov Cont	2005	0	0	0	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0
12	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0
12	Cov Cont	2007	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0
12	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0
13	Removal	2004	0	0	2	0	0	0	0	0	73	0	0	0	0	0	0	0	16	0	0
13	Removal	2005	0	0	3	0	0	0	0	0	298	0	0	0	0	0	0	0	0	0	0
13	Removal	2006	0	0	5	0	0	0	0	0	83	0	0	0	0	0	0	0	0	0	0
13	Removal	2007	0	0	2	0	0	0	0	0	102	0	0	0	0	0	0	0	0	0	0
13	Removal	2008	0	0	4	0	0	0	0	0	107	0	2	0	0	0	0	0	0	0	0
13	Far Cont	2005	0	0	0	0	0	0	0	0	39	0	1	0	0	0	0	0	0	0	0
13	Far Cont	2006	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2007	0	0	0	0	0	0	0	0	32	0	2	0	0	0	0	0	0	0	0
13	Far Cont	2008	0	0	0	0	0	0	0	0	9	0	1	0	0	1	0	0	0	0	0
13	Cov Cont	2004	0	0	0	0	0	0	0	0	15	0	0	0	3	0	0	0	21	0	0
13	Cov Cont	2005	0	0	0	0	0	0	0	0	18	0	0	0	4	0	0	0	1	0	0
13	Cov Cont	2006	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0	0	0	0	0
13	Cov Cont	2007	0	0	0	0	0	0	0	0	14	0	0	0	4	0	0	0	0	0	0
13	Cov Cont	2008	0	0	0	0	0	0	0	0	7	0	0	0	4	0	0	0	0	0	0

site	Treatment	Year	*Aralia spinosa*	*Callicarpa americana*	*Campsis radicans*	*Diospyros virginiana*	*Gaylussacia dumosa*	*Ilex glabra*	*Ilex vomitoria*	*Ligustrum sinense*	*Liquidambar styraciflua*	*Lonicera japonica*	*Malus angustifolia*	*Morella cerifera*	*Nyssa sylvatica*	*Parthenocissus quinquefolia*	*Prunus serotina*	*Quercus falcata*	*Quercus nigra*	*Quercus virginiana*	*Rhus copallinum*
11	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
11	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
11	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
11	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2008	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12	Removal	2004	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
12	Removal	2005	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
12	Removal	2006	2	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
12	Removal	2007	0	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12	Removal	2008	0	6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
12	Cov Cont	2004	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1
12	Cov Cont	2005	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
12	Cov Cont	2006	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1
12	Cov Cont	2007	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2008	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0	0	0	0	2
13	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
13	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2005	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2006	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2007	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2008	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2008	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Rubus cuneifolius*	*Sassafras albidum*	*Triadica sebifera*	*Smilax bona-nox*	*Smilax glauca*	*Smilax rotundifolia*	*Toxicodendron radicans*	Unidentified *Vaccineum*	*Vaccinium darrowii*	*Vaccinium elliottii*	*Vaccinium arboreum*	*Vaccinium stamineum*
11	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2006	1	0	0	0	0	0	0	0	0	0	0	0
11	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0
11	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
11	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2004	2	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2005	2	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2007	1	0	0	0	0	0	0	0	0	0	0	0
11	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
12	Control	2004	6	0	0	0	0	0	0	0	0	0	0	0
12	Control	2005	6	0	0	0	0	0	1	0	0	0	0	0
12	Control	2006	2	0	0	0	0	0	1	0	0	0	0	0
12	Control	2007	2	0	0	0	0	0	2	0	0	0	0	0
12	Control	2008	2	0	0	0	0	0	0	0	0	0	0	0
12	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0
12	Removal	2005	0	0	0	0	0	0	1	0	0	0	0	0
12	Removal	2006	0	0	0	0	1	0	0	0	0	0	0	0
12	Removal	2007	0	0	0	0	1	0	0	0	0	0	0	0
12	Removal	2008	0	0	0	0	1	0	0	0	0	0	0	0
12	Cov Cont	2004	1	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2005	7	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2006	3	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
12	Cov Cont	2008	1	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2004	1	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
13	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
13	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
13	Cov Cont	2007	0	0	0	0	0	0	0	0	1	0	0	0
13	Cov Cont	2008	0	0	0	0	0	0	0	0	3	0	0	0

site	Treatment	Year	*Dichanthelium aciculare*	*Dichanthelium acuminatum*	*Dichanthelium ensifolium*	*Dichanthelium laxiflorum*	Dichanthelium ovale	*Dichanthelium scoparium*	*Dichanthelium sphaerocarpon*	*Dichanthelium strigosum*	*Dichanthelium dichotomum*	*Panicum anceps*	*Panicum verrucosum*	*Panicum virgatum*	*Dichanthelium* seedlings	*Fimbristylis puberula*	*Rhynchospora glomerata*	*Rhynchospora rariflora*	*Scleria* sp	*Scleria ciliata*	*Scleria pauciflora*
13	Control	2004	0	10	15	0	3	0	0	0	0	0	0	0	0	0	0	0	0	62	0
13	Control	2005	0	1	1	0	1	0	0	0	0	0	0	3	0	0	0	0	0	54	0
13	Control	2006	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	0
13	Control	2007	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	0
13	Control	2008	0	12	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	65	0
14	Far Cont	2005	0	0	0	0	0	0	0	1	0	0	169	0	0	0	0	0	57	0	0
14	Far Cont	2006	8	0	0	0	2	0	11	1	0	0	0	0	0	0	0	4	1	0	0
14	Far Cont	2007	29	0	3	0	7	0	2	1	0	0	24	0	0	0	0	4	48	0	0
14	Far Cont	2008	58	0	5	0	9	0	16	2	0	1	1	0	0	0	0	10	3	0	0
14	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2005	0	0	0	0	0	0	2	7	0	0	43	0	0	0	0	0	0	0	7
14	Removal	2006	0	0	3	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	6
14	Removal	2007	0	0	11	0	1	0	4	2	0	0	31	0	0	0	0	0	0	0	2
14	Removal	2008	0	0	10	0	2	0	3	4	0	0	3	0	0	0	0	0	0	0	0
14	Control	2004	0	11	0	0	9	0	18	37	0	0	46	0	0	0	0	0	0	0	0
14	Control	2005	0	3	0	0	7	0	0	29	0	0	497	0	0	0	1	0	0	0	0
14	Control	2006	0	0	0	0	15	0	18	24	0	0	2	0	0	0	1	0	0	0	0
14	Control	2007	0	16	6	0	6	0	43	28	0	0	300	0	0	0	1	0	0	0	0
14	Control	2008	0	38	0	0	17	0	49	43	0	0	3	0	0	0	3	0	0	0	0
14	Cov Cont	2004	0	4	10	0	15	0	20	35	0	0	2	0	0	0	0	0	0	0	0
14	Cov Cont	2005	0	1	0	0	6	0	1	34	0	0	637	0	0	0	3	0	0	0	0
14	Cov Cont	2006	0	3	2	0	18	0	13	23	0	0	16	0	0	0	1	0	0	0	0
14	Cov Cont	2007	0	9	2	0	28	0	11	27	0	0	540	0	0	0	1	0	0	0	0
14	Cov Cont	2008	9	14	14	0	23	0	27	40	0	0	2	0	0	0	1	0	0	0	0
15	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
15	Removal	2005	2	0	0	0	5	0	0	0	0	0	3	0	0	0	3	2	0	0	0
15	Removal	2006	0	0	2	0	5	0	4	2	0	0	5	0	0	0	3	2	0	0	0
15	Removal	2007	2	2	4	0	2	0	0	0	0	0	0	0	0	0	7	1	0	0	0
15	Removal	2008	18	8	56	0	48	0	4	0	0	0	37	0	0	0	5	1	0	0	0
15	Far Cont	2005	0	15	1	0	11	0	0	0	0	27	1	9	0	0	0	0	0	0	7
15	Far Cont	2006	0	3	0	0	6	0	2	0	0	41	2	8	0	0	0	0	0	0	26
15	Far Cont	2007	0	2	4	0	7	0	3	0	0	38	0	0	0	0	0	0	0	0	0
15	Far Cont	2008	0	9	7	0	11	0	2	0	0	57	12	4	0	0	0	0	0	0	6
15	Cov Cont	2004	24	13	19	0	62	0	0	0	0	7	83	0	31	0	4	0	0	0	0
15	Cov Cont	2005	12	49	24	0	98	0	15	1	0	7	5	0	0	0	4	0	0	0	0
15	Cov Cont	2006	0	52	25	0	40	0	6	3	0	6	9	0	0	0	3	0	0	0	0
15	Cov Cont	2007	4	28	34	0	49	0	0	1	0	3	0	0	0	0	2	0	0	0	0
15	Cov Cont	2008	3	37	75	0	85	0	3	28	0	4	7	0	0	0	3	0	0	0	0
15	Control	2004	0	30	5	0	18	0	0	0	0	1	59	6	2	0	4	0	0	0	0
15	Control	2005	2	44	1	0	19	0	6	0	0	4	2	6	0	0	4	0	0	0	0
15	Control	2006	1	45	6	0	14	0	3	0	0	3	6	11	0	0	7	1	0	0	0
15	Control	2007	1	20	14	0	9	0	3	0	0	2	2	6	0	0	5	0	0	0	0

site	Treatment	Year	Cyperaceae sp	Cyperaceae (same within site)	*Acalypha gracilens*	*Ageratina altissima/aromatica*	*Aletris lutea*	*Ambrosia artemisiifolia*	*Symphyotrichum adnatum*	*Symphyotrichum concolor*	*Symphyotrichum dumosum*	*Eurybia hemispherica*	*Symphyotrichum patens*	*Symphyotrichum praealtum*	*Ionactis linariifolius*	*Boltonia diffusa*	*Chrysopsis mariana*	*Cirsium horridulum*	*Conoclinium coelestinum*	*Diodia teres*	Diodia virginiana
13	Control	2004	0	0	1	0	0	0	4	0	6	0	0	0	0	0	0	0	0	0	0
13	Control	2005	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0
13	Control	2006	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
13	Control	2007	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0
13	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2005	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	44	1
14	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
14	Far Cont	2007	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
14	Far Cont	2008	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
14	Removal	2004	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
14	Removal	2005	0	0	9	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0
14	Removal	2006	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
14	Removal	2007	0	0	6	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0
14	Removal	2008	0	0	3	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
14	Control	2004	0	0	5	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	5
14	Control	2005	0	0	30	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	1
14	Control	2006	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0
14	Control	2007	0	0	1	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0
14	Control	2008	0	0	2	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2004	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2005	0	0	12	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2006	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2007	0	0	11	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2008	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	1	0	0
15	Removal	2004	0	0	10	0	0	0	0	0	5	6	0	0	0	9	0	0	0	0	0
15	Removal	2005	0	0	1	9	0	0	0	0	10	6	0	0	0	8	0	0	0	0	0
15	Removal	2006	0	0	9	0	0	0	0	0	14	7	0	0	0	7	0	0	0	0	0
15	Removal	2007	0	0	2	4	0	0	0	0	21	7	0	0	0	4	0	0	0	0	0
15	Removal	2008	0	0	9	2	0	0	0	0	6	9	0	0	0	3	0	0	0	0	0
15	Far Cont	2005	0	0	4	15	0	0	0	0	6	1	0	0	0	0	9	0	0	0	0
15	Far Cont	2006	0	0	22	0	0	0	0	0	6	0	0	0	0	0	11	0	0	0	0
15	Far Cont	2007	0	0	2	4	0	0	0	0	4	0	0	0	0	0	10	0	0	0	0
15	Far Cont	2008	0	0	24	1	0	0	0	0	2	0	0	0	0	0	18	0	0	0	0
15	Cov Cont	2004	0	0	9	1	0	0	0	0	11	7	0	0	0	0	0	0	0	1	0
15	Cov Cont	2005	0	0	0	2	0	0	0	0	12	6	0	0	0	0	0	0	0	3	0
15	Cov Cont	2006	0	0	6	1	0	0	0	0	12	5	0	0	0	0	0	0	0	1	0
15	Cov Cont	2007	0	0	0	2	0	0	0	0	16	7	0	0	0	0	0	0	0	0	0
15	Cov Cont	2008	0	0	15	3	0	0	0	0	19	5	0	0	0	0	0	0	0	0	0
15	Control	2004	0	0	20	1	0	0	0	0	51	0	0	0	0	0	0	0	0	0	0
15	Control	2005	0	0	1	57	0	0	0	0	29	0	0	0	0	0	0	0	0	0	0
15	Control	2006	0	0	17	0	0	0	0	0	43	0	0	0	0	0	0	0	0	0	0
15	Control	2007	0	0	1	13	0	0	0	0	30	0	0	3	0	0	0	0	0	0	0

site	Treatment	Year	*Drosera brevifolia*	*Elephantopus tomentosus*	*Eryngium integrifolium*	*Eryngium yuccifolium*	*Eupatorium album*	*Eupatorium capillifolium*	*Euphorbia corollata*	*Eupatorium perfoliatum*	*Eupatorium rotundifolium*	*Eupatorium semiserratum*	*Gelsemium sempervirens*	*Pseudognaphalium obtusifolium*	*Gratiola pilosa*	*Helianthus angustifolius*	*Helenium flexuosum*	*Houstonia procumbens*	*Helianthus radula*	*Hibiscus aculeatus*	*Hieracium gronovii*
13	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2008	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2005	0	0	3	0	0	0	0	0	0	9	0	0	0	17	2	0	0	0	0
14	Far Cont	2006	0	0	4	0	0	0	0	0	0	2	0	0	0	26	1	0	0	0	0
14	Far Cont	2007	0	0	11	0	0	0	0	0	0	3	0	0	0	77	1	0	0	0	0
14	Far Cont	2008	0	0	19	0	0	0	0	0	0	5	0	0	0	97	1	0	0	0	0
14	Removal	2004	0	0	0	0	3	0	0	0	0	0	0	0	0	18	0	0	0	0	0
14	Removal	2005	0	0	0	0	5	0	0	0	0	0	0	0	0	45	0	0	0	0	0
14	Removal	2006	0	0	0	0	2	0	0	0	0	0	0	0	0	18	0	0	0	0	0
14	Removal	2007	0	0	0	0	3	0	0	0	0	0	0	0	0	39	0	0	0	0	0
14	Removal	2008	0	0	0	0	2	0	0	0	0	0	0	0	0	36	0	0	0	0	0
14	Control	2004	0	0	24	0	0	0	0	0	0	6	0	0	0	42	0	0	0	0	0
14	Control	2005	0	0	27	0	0	0	0	0	0	10	0	0	0	60	0	0	0	0	0
14	Control	2006	0	0	3	0	0	0	0	0	0	3	0	0	0	10	0	0	0	0	0
14	Control	2007	0	0	29	0	0	0	0	0	0	9	0	0	4	12	0	0	0	0	0
14	Control	2008	4	0	41	0	0	0	0	0	0	14	0	1	4	19	0	0	0	0	0
14	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0
14	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	61	0	0	0	0	0
14	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0
14	Cov Cont	2007	0	0	0	0	0	0	0	0	0	1	0	0	0	39	0	0	0	0	0
14	Cov Cont	2008	0	0	0	0	0	0	0	0	7	0	0	0	1	38	0	0	0	0	0
15	Removal	2004	0	0	0	0	0	0	0	0	0	1	0	0	0	29	0	0	0	0	0
15	Removal	2005	0	0	0	0	0	0	0	0	0	2	0	0	0	23	0	0	0	0	0
15	Removal	2006	13	0	0	0	0	0	0	0	0	1	0	0	0	17	0	0	0	0	0
15	Removal	2007	26	0	0	0	0	0	0	0	0	1	0	1	0	9	0	0	0	0	0
15	Removal	2008	42	0	0	0	0	0	0	0	0	3	0	0	0	14	0	0	0	0	0
15	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0	0
15	Far Cont	2006	0	0	0	0	0	0	4	0	0	0	0	0	0	11	0	0	0	0	0
15	Far Cont	2007	0	0	0	0	0	0	1	0	0	0	0	0	0	6	0	0	0	0	0
15	Far Cont	2008	0	0	0	0	0	0	2	0	0	0	0	0	0	10	0	0	0	0	0
15	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0
15	Cov Cont	2005	0	5	0	0	0	0	0	0	0	2	0	0	0	24	0	0	0	0	0
15	Cov Cont	2006	1	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0
15	Cov Cont	2007	7	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0
15	Cov Cont	2008	6	0	0	0	0	0	0	0	0	2	0	0	0	22	0	0	0	0	0
15	Control	2004	1	0	0	0	0	0	0	0	0	0	0	0	0	24	6	0	0	0	0
15	Control	2005	1	0	0	0	0	0	0	0	0	0	0	0	0	11	2	0	0	0	0
15	Control	2006	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
15	Control	2007	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Hyptis alata*	*Hypericum crux-andreae*	*Hypericum hypericoides*	*Hypoxis juncea*	*Hypericum setosum*	*Lactuca graminifolia*	*Lechea minor*	*Liatris* sp	*Linum medium*	*Lobelia brevifolia*	*Lobelia puberula*	*Ludwigia hirtella*	*Mecardonia acuminata*	*Mitchella repens*	*Mitreola sessilifolia*	Unknown Forb Species A	*Oxalis corniculata*	*Phyllanthus caroliniensis*	*Phlox divaricata*
13	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2005	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2006	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	2	54	0	0	0	0	1586	0
14	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	62	0	0	0	0	5	0
14	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	5	0	650	0
14	Far Cont	2008	0	0	1	0	0	0	0	0	0	0	0	3	36	0	2	15	0	86	0
14	Removal	2004	0	4	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	81	0
14	Removal	2005	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	63	0
14	Removal	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
14	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	0
14	Removal	2008	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	47	0
14	Control	2004	0	1	0	0	0	0	0	0	0	4	2	1	0	0	6	0	1	700	0
14	Control	2005	7	0	0	0	0	0	0	0	0	4	5	0	0	0	1	0	2	739	0
14	Control	2006	0	0	0	0	0	0	0	0	0	4	2	0	0	0	1	0	0	43	0
14	Control	2007	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	591	0
14	Control	2008	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	380	0
14	Cov Cont	2004	0	4	0	0	0	0	0	0	0	0	0	0	0	0	127	0	1	267	0
14	Cov Cont	2005	0	4	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2	597	0
14	Cov Cont	2006	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0
14	Cov Cont	2007	0	5	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	411	0
14	Cov Cont	2008	0	6	0	0	0	0	0	0	0	0	0	0	0	0	74	0	2	164	0
15	Removal	2004	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0
15	Removal	2005	0	3	0	0	0	0	0	0	0	0	0	0	0	0	9	0	15	0	0
15	Removal	2006	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	21	0	0
15	Removal	2007	5	2	0	0	0	0	0	0	0	0	0	5	0	0	1	0	17	0	0
15	Removal	2008	0	12	0	0	0	0	0	0	0	0	0	0	0	0	2	0	12	0	0
15	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0
15	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0
15	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0
15	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	11	0
15	Cov Cont	2004	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2005	0	3	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
15	Cov Cont	2006	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2007	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
15	Cov Cont	2008	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	1	0	0
15	Control	2004	0	4	0	0	0	0	0	9	0	0	2	0	0	0	0	0	0	0	0
15	Control	2005	0	0	0	0	0	0	0	1	2	0	2	0	0	0	0	0	2	0	0
15	Control	2006	0	7	0	0	0	0	0	6	0	0	1	0	0	0	0	0	1	1	0
15	Control	2007	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Physalis virginiana*	*Pityopsis graminifolia*	*Pluchea foetida*	*Polygala nana*	*Pteridium aquilinum*	*Pycnanthemum albescens*	*Rhexia alifanus*	*Rhexia mariana*	*Ruellia caroliniensis /pedunculata*	*Rudbeckia hirta*	*Rubus trivialis*	*Scutellaria integrifolia*	*Solanum carolinense*	*Solidago odora*	*Solidago rugosa*	*Trachelospermum difforme*	*Trichostema* sp	*Tragia smallii*	Unknown Forb Species B
13	Control	2004	0	12	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0
13	Control	2005	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
13	Control	2006	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
13	Control	2007	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
13	Control	2008	0	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0
14	Far Cont	2005	0	0	1	0	0	0	0	3	0	0	0	0	0	0	27	0	0	0	0
14	Far Cont	2006	0	0	1	0	0	0	0	7	0	0	0	0	0	0	29	1	0	0	0
14	Far Cont	2007	0	0	0	0	0	0	0	46	0	0	0	0	0	0	17	3	0	0	0
14	Far Cont	2008	0	0	3	0	0	0	0	0	0	0	1	0	0	1	35	1	0	0	0
14	Removal	2004	0	0	0	0	0	0	0	0	0	0	7	0	0	6	6	0	0	0	0
14	Removal	2005	0	0	0	0	0	0	0	0	0	0	6	0	0	5	7	0	0	1	0
14	Removal	2006	0	0	0	0	0	0	0	0	0	0	4	0	0	4	1	0	0	1	0
14	Removal	2007	0	0	0	0	0	0	0	0	0	0	5	0	0	4	1	0	0	1	0
14	Removal	2008	0	0	0	0	0	0	0	0	0	0	2	0	0	3	2	0	0	0	0
14	Control	2004	0	0	2	0	0	0	0	0	0	0	31	0	0	0	16	0	0	0	0
14	Control	2005	0	0	0	0	0	0	1	0	0	1	32	0	0	0	19	0	0	0	0
14	Control	2006	0	0	0	0	0	0	0	0	0	0	14	0	0	0	21	0	0	0	0
14	Control	2007	0	0	0	0	0	0	0	0	0	0	19	0	0	0	12	0	0	0	0
14	Control	2008	0	0	0	0	0	0	0	0	0	0	20	0	0	0	21	0	0	0	0
14	Cov Cont	2004	0	0	0	0	0	0	0	0	2	0	22	10	0	5	9	0	0	0	0
14	Cov Cont	2005	0	0	0	0	0	0	0	0	2	0	36	3	0	6	17	0	0	0	0
14	Cov Cont	2006	0	0	0	0	0	0	0	0	1	0	8	2	0	3	9	0	0	0	0
14	Cov Cont	2007	0	0	0	0	1	0	0	0	0	0	21	1	0	6	10	0	0	0	0
14	Cov Cont	2008	0	0	0	0	1	0	0	0	1	0	11	1	0	4	10	0	0	0	0
15	Removal	2004	0	0	0	0	0	0	0	0	5	0	4	1	0	0	5	0	0	2	0
15	Removal	2005	0	0	0	0	0	0	0	0	6	0	4	1	0	0	4	0	0	2	0
15	Removal	2006	0	0	0	0	0	0	0	0	3	0	1	0	0	0	1	0	0	2	0
15	Removal	2007	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0
15	Removal	2008	0	0	0	0	0	0	0	0	3	0	4	0	0	1	0	0	0	3	0
15	Far Cont	2005	0	0	0	0	0	0	3	0	1	1	1	0	0	0	10	0	0	0	0
15	Far Cont	2006	0	0	0	0	0	0	21	0	1	0	1	0	0	0	2	0	0	0	0
15	Far Cont	2007	0	1	0	0	0	0	3	0	0	0	2	0	0	0	5	0	0	0	0
15	Far Cont	2008	0	0	0	0	0	0	6	0	0	0	5	0	0	0	7	0	0	0	0
15	Cov Cont	2004	0	0	0	0	0	0	0	0	10	0	7	0	0	0	8	0	1	5	0
15	Cov Cont	2005	0	0	0	0	0	0	0	0	5	0	7	1	0	1	5	0	0	3	0
15	Cov Cont	2006	0	0	0	0	0	0	0	0	4	0	4	1	0	0	0	0	0	5	0
15	Cov Cont	2007	0	0	0	0	0	0	0	0	1	0	6	1	0	0	0	0	0	3	0
15	Cov Cont	2008	0	0	0	0	0	0	0	0	2	0	4	2	0	0	0	0	0	7	0
15	Control	2004	0	0	0	0	0	0	0	0	5	1	4	0	0	0	13	0	0	5	0
15	Control	2005	1	2	0	0	0	0	0	0	1	1	2	0	0	2	11	0	0	2	0
15	Control	2006	0	3	0	0	0	0	0	0	1	0	2	0	0	0	2	0	0	4	0
15	Control	2007	0	1	0	1	0	0	0	0	1	0	5	0	0	0	3	0	0	2	0

site	Treatment	Year	Unknown Forb Species C	Unknown Forb Species D	Unknown Forb Species E	Unknown Forb Species F	Unknown Forb Species G	Unknown Forb Species H	Unidentified Forbs	Unknown Forb Species I	Unknown Forb Species J	Unknown Forb Species K	Unidentified basal rosette	*Viola ×primulifolia*	*Viola septemloba*	*Andropogon gyrans*	*Aristida purpurascens*	*Chasmanthium laxum*	*Ctenium aromaticum*	*Agrostis* sp	*Gymnopogon brevifolius*
13	Control	2004	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0
14	Far Cont	2005	0	0	0	0	0	0	1	0	0	0	0	14	0	0	0	0	0	0	0
14	Far Cont	2006	6	0	0	0	0	0	0	0	8	0	0	6	0	4	0	0	0	0	0
14	Far Cont	2007	150	0	0	0	0	0	0	0	5	0	0	2	0	3	0	0	0	0	0
14	Far Cont	2008	16	0	0	0	0	0	0	0	16	0	1	7	0	23	0	0	0	0	0
14	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Control	2004	0	0	0	0	0	7	2	0	0	0	0	45	0	0	0	0	0	0	0
14	Control	2005	0	0	0	0	0	13	0	0	0	0	0	2	0	0	0	0	0	0	0
14	Control	2006	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Control	2007	0	0	0	0	0	15	0	0	1	0	0	0	0	1	0	0	0	0	0
14	Control	2008	0	0	0	0	0	28	0	0	2	0	0	0	0	3	0	0	0	0	0
14	Cov Cont	2004	0	0	0	0	0	0	28	0	0	0	1	12	0	0	0	0	0	0	0
14	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
14	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2004	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2005	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
15	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0
15	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Far Cont	2005	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	24
15	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
15	Far Cont	2007	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5
15	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
15	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0
15	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	2	23	0	0	0	0
15	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	0
15	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
15	Control	2004	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
15	Control	2005	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
15	Control	2006	0	0	0	0	0	0	0	0	0	0	0	3	0	5	0	0	0	0	0
15	Control	2007	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1

site	Treatment	Year	*Paspalum floridanum*	*Paspalum notatum*	*Schizachyrium scoparium*	*Schizachyrium tenerum*	Unknown Grass A	Unknown Grass B	Unknown Grass C	Unknown Grass D	Unknown Grass E	Unknown Grass F	Unidentified Poaceae	Poaceae (same within site)	Unknown Grass G	*Baptisia bracteata*	*Centrosema virginianum*	*Chamaecrista nictitans*	*Clitoria mariana*	*Crotalaria rotundifolia*	*Desmodium ciliare*
13	Control	2004	0	0	40	163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2005	0	0	0	388	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
13	Control	2006	0	0	6	524	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
13	Control	2007	0	0	0	875	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0
13	Control	2008	0	0	0	685	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
14	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2008	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2004	0	0	10	29	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
14	Removal	2005	0	0	11	101	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
14	Removal	2006	0	0	15	128	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
14	Removal	2007	0	0	17	277	2	0	0	0	0	0	0	0	0	0	6	0	0	0	0
14	Removal	2008	0	0	20	289	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
14	Control	2004	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Control	2005	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2004	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2005	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2006	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2007	2	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2008	5	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2004	0	0	37	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2005	0	0	75	355	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2006	0	0	77	922	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2007	0	0	113	1237	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2008	0	0	113	1312	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Far Cont	2005	0	0	36	395	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
15	Far Cont	2006	0	0	11	703	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15	Far Cont	2007	0	0	39	908	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
15	Far Cont	2008	0	0	23	784	1	0	0	0	0	0	1	0	0	0	0	0	0	3	0
15	Cov Cont	2004	0	0	44	141	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2005	0	0	92	220	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2006	0	0	86	578	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
15	Cov Cont	2007	0	1	121	693	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2008	0	0	142	791	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Control	2004	0	0	56	216	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Control	2005	0	0	69	303	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Control	2006	0	0	98	854	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Control	2007	0	0	132	923	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Desmodium lineatum*	*Desmodium tenuifolium*	*Galactia erecta*	*Galactia volubilis*	*Lespedeza capitata*	*Lespedeza repens*	*Rhynchosia reniformis*	Unidentified Fabaceae seedlings	*Stylosanthes biflora*	*Strophostyles umbellata*	*Tephrosia florida*	*Tephrosia spicata*	*Tephrosia onobrychoides/hispidula*	Fabaceae sp	Fabaceae vine	Fabaceae	*Pinus palustris*	*Pinus taeda*	*Acer rubrum*
13	Control	2004	0	0	0	0	0	0	0	0	106	0	2	0	0	0	0	0	16	0	0
13	Control	2005	0	0	0	0	0	0	0	0	199	0	1	0	0	0	0	0	0	0	0
13	Control	2006	0	0	0	0	0	0	0	0	100	0	1	0	0	0	0	0	0	0	0
13	Control	2007	0	0	0	0	0	0	0	0	77	0	2	0	0	0	0	0	0	0	0
13	Control	2008	0	0	0	0	0	0	0	0	63	0	2	0	0	0	0	0	0	0	0
14	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2004	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	30	0	0
14	Removal	2005	0	0	0	0	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0
14	Removal	2006	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0
14	Removal	2007	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0
14	Removal	2008	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0
14	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0
14	Control	2005	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0
14	Control	2006	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
14	Control	2007	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
14	Control	2008	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
14	Cov Cont	2004	7	0	0	0	0	5	0	0	0	0	0	3	0	0	0	0	33	1	0
14	Cov Cont	2005	11	0	0	0	0	4	0	0	0	0	0	3	0	0	0	0	1	0	0
14	Cov Cont	2006	3	0	1	0	0	5	0	0	0	0	0	3	0	0	0	0	2	0	0
14	Cov Cont	2007	8	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0	0
14	Cov Cont	2008	7	0	0	0	0	4	0	0	0	0	0	6	0	0	0	0	0	0	0
15	Removal	2004	3	0	0	0	0	0	0	0	50	0	0	7	0	0	0	0	0	0	0
15	Removal	2005	3	0	0	0	0	0	0	0	88	0	0	5	0	0	0	0	0	1	0
15	Removal	2006	5	0	0	0	0	0	0	0	152	0	0	12	0	0	0	0	0	0	0
15	Removal	2007	1	0	0	0	0	0	0	0	30	0	0	11	0	0	0	0	0	0	0
15	Removal	2008	1	0	0	0	0	0	0	0	96	0	0	14	0	0	0	0	0	0	0
15	Far Cont	2005	0	0	0	0	0	0	0	0	3	3	0	0	0	1	0	0	0	1	0
15	Far Cont	2006	0	0	0	0	0	0	0	0	9	3	0	0	0	0	0	0	0	0	0
15	Far Cont	2007	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0
15	Far Cont	2008	0	0	0	0	0	0	0	0	11	2	1	0	0	0	0	0	0	0	0
15	Cov Cont	2004	0	0	0	0	0	2	0	0	47	0	0	10	0	0	0	0	0	0	0
15	Cov Cont	2005	0	0	0	0	0	2	0	0	43	0	0	10	0	0	0	0	0	2	0
15	Cov Cont	2006	0	0	0	0	0	1	0	0	74	0	0	13	0	0	0	0	0	0	0
15	Cov Cont	2007	0	0	0	0	0	0	0	0	7	0	0	8	0	0	0	0	0	0	0
15	Cov Cont	2008	0	0	0	0	0	3	0	0	59	0	0	29	0	0	0	0	0	0	0
15	Control	2004	0	0	0	0	0	0	0	0	213	0	0	12	0	0	0	0	0	0	0
15	Control	2005	0	0	0	0	0	0	0	0	103	0	0	12	0	0	0	0	0	1	0
15	Control	2006	0	0	0	0	0	0	0	0	285	0	0	13	0	0	0	0	0	0	0
15	Control	2007	0	0	0	0	0	0	0	0	20	0	0	15	0	0	0	0	0	0	0

site	Treatment	Year	*Aralia spinosa*	*Callicarpa americana*	*Campsis radicans*	*Diospyros virginiana*	*Gaylussacia dumosa*	*Ilex glabra*	*Ilex vomitoria*	*Ligustrum sinense*	*Liquidambar styraciflua*	*Lonicera japonica*	*Malus angustifolia*	*Morella cerifera*	*Nyssa sylvatica*	*Parthenocissus quinquefolia*	*Prunus serotina*	*Quercus falcata*	*Quercus nigra*	*Quercus virginiana*	*Rhus copallinum*
13	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
13	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2005	0	0	0	0	0	15	0	7	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2006	0	0	0	0	0	11	0	4	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2007	0	0	0	0	0	29	0	7	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2008	0	0	0	0	0	29	0	12	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2004	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
14	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Control	2005	0	1	0	0	0	3	0	1	0	0	0	2	0	0	0	0	0	0	0
14	Control	2006	0	0	0	0	0	5	0	1	0	0	0	2	0	0	0	0	0	0	0
14	Control	2007	0	0	0	0	0	18	0	1	0	0	0	2	0	0	0	0	0	0	0
14	Control	2008	0	2	0	0	0	18	0	1	0	0	0	1	0	0	0	0	0	0	0
14	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6
14	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
14	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
14	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
14	Cov Cont	2008	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Rubus cuneifolius*	*Sassafras albidum*	*Triadica sebifera*	*Smilax bona-nox*	*Smilax glauca*	*Smilax rotundifolia*	*Toxicodendron radicans*	Unidentified *Vaccineum*	*Vaccinium darrowii*	*Vaccinium elliottii*	*Vaccinium arboreum*	*Vaccinium stamineum*
13	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0
13	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
14	Far Cont	2005	0	0	0	0	6	0	0	0	0	0	0	0
14	Far Cont	2006	0	0	0	0	8	0	0	0	0	0	0	0
14	Far Cont	2007	0	0	0	0	12	0	0	0	0	0	0	0
14	Far Cont	2008	0	0	0	0	8	0	0	0	0	0	0	0
14	Removal	2004	0	0	0	0	27	0	0	0	0	0	0	0
14	Removal	2005	0	0	0	0	48	0	0	0	0	0	0	0
14	Removal	2006	0	0	0	0	32	0	0	0	0	0	0	0
14	Removal	2007	0	0	0	0	44	0	0	0	0	0	0	0
14	Removal	2008	0	0	0	0	34	0	0	0	0	0	0	0
14	Control	2004	0	0	0	0	9	0	0	0	0	0	0	0
14	Control	2005	0	0	0	0	14	0	0	0	0	0	0	0
14	Control	2006	0	0	0	0	10	0	0	0	0	0	0	0
14	Control	2007	0	0	0	0	11	0	0	0	0	0	0	0
14	Control	2008	0	0	0	0	9	0	0	0	0	0	0	0
14	Cov Cont	2004	0	0	0	0	20	0	0	0	0	0	0	0
14	Cov Cont	2005	0	0	0	0	39	0	0	0	0	0	0	0
14	Cov Cont	2006	0	0	0	0	31	0	0	0	0	0	0	0
14	Cov Cont	2007	0	0	0	0	37	0	0	0	0	0	0	0
14	Cov Cont	2008	0	0	0	0	37	0	0	0	0	0	0	0
15	Removal	2004	0	0	0	0	0	0	0	0	0	0	7	0
15	Removal	2005	0	0	0	0	0	0	0	0	0	0	6	0
15	Removal	2006	0	0	0	0	0	0	0	0	0	0	4	0
15	Removal	2007	0	0	0	0	0	0	0	0	0	0	4	0
15	Removal	2008	0	0	0	0	0	0	0	0	0	0	3	0
15	Far Cont	2005	0	0	0	0	3	0	0	0	0	0	0	0
15	Far Cont	2006	0	0	0	0	4	0	0	0	0	0	0	0
15	Far Cont	2007	0	0	0	0	4	0	0	0	0	0	0	0
15	Far Cont	2008	0	0	0	0	5	0	0	0	0	0	0	0
15	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
15	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
15	Control	2004	0	0	0	0	0	0	0	0	0	0	5	0
15	Control	2005	0	0	0	0	0	0	0	0	0	0	3	0
15	Control	2006	0	0	0	0	0	0	0	0	0	0	2	0
15	Control	2007	0	0	0	0	0	0	0	0	0	0	3	0

site	Treatment	Year	*Dichanthelium aciculare*	*Dichanthelium acuminatum*	*Dichanthelium ensifolium*	*Dichanthelium laxiflorum*	Dichanthelium ovale	*Dichanthelium scoparium*	*Dichanthelium sphaerocarpon*	*Dichanthelium strigosum*	*Dichanthelium dichotomum*	*Panicum anceps*	*Panicum verrucosum*	*Panicum virgatum*	*Dichanthelium* seedlings	*Fimbristylis puberula*	*Rhynchospora glomerata*	*Rhynchospora rariflora*	*Scleria* sp	*Scleria ciliata*	*Scleria pauciflora*
15	Control	2008	6	28	45	0	33	0	2	0	0	3	19	8	0	0	1	0	0	0	0
16	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
16	Removal	2005	0	0	0	0	17	0	0	0	0	28	2	0	0	0	11	0	0	9	0
16	Removal	2006	0	0	3	0	60	0	0	0	0	4	3	0	0	0	14	0	0	2	0
16	Removal	2007	0	0	1	1	22	0	2	0	0	68	2	0	0	0	7	0	0	2	0
16	Removal	2008	0	0	1	1	84	0	2	0	0	14	102	0	0	0	4	0	0	3	0
16	Control	2004	0	0	8	0	182	0	0	0	0	0	538	0	5	0	0	0	0	1	0
16	Control	2005	0	0	3	0	291	0	2	0	0	1	45	0	0	0	0	0	0	3	1
16	Control	2006	0	0	2	0	174	0	0	0	0	0	42	0	0	0	1	0	0	0	4
16	Control	2007	0	0	0	1	126	0	1	0	0	0	28	0	0	0	0	0	0	0	1
16	Control	2008	0	1	8	1	215	0	8	2	0	0	373	0	0	0	0	0	0	0	2
16	Cov Cont	2004	0	0	2	0	22	0	2	0	0	11	228	0	0	0	0	0	0	0	0
16	Cov Cont	2005	0	0	1	13	56	0	2	0	0	16	67	0	0	0	0	0	0	0	0
16	Cov Cont	2006	0	0	19	7	16	0	1	0	0	16	23	0	0	0	0	0	0	0	0
16	Cov Cont	2007	0	0	1	9	30	0	1	0	0	5	10	0	0	0	0	0	0	0	0
16	Cov Cont	2008	0	0	0	32	225	0	5	0	0	6	113	0	0	0	0	0	0	1	0
16	Far Cont	2005	0	3	6	0	143	0	31	0	0	0	0	20	0	0	10	0	0	0	0
16	Far Cont	2006	0	4	1	0	101	0	22	0	0	0	49	1	0	0	6	0	0	0	0
16	Far Cont	2007	0	2	3	0	129	0	19	0	0	0	5	4	0	0	3	0	0	0	2
16	Far Cont	2008	0	9	13	0	155	0	6	0	0	0	72	0	0	0	11	0	0	0	9
17	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Removal	2005	0	11	25	0	6	0	2	0	0	12	9	0	0	0	0	0	0	0	15
17	Removal	2006	2	18	31	0	18	0	40	0	0	5	24	0	0	0	0	0	0	0	11
17	Removal	2007	4	8	20	0	14	0	5	0	0	0	3	0	0	0	0	0	0	0	3
17	Removal	2008	6	1	23	0	19	0	4	0	0	0	4	0	0	0	0	0	0	0	0
17	Control	2004	0	0	1	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2005	0	0	0	14	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2006	0	0	6	27	1	0	2	0	0	0	161	0	0	0	0	0	0	0	0
17	Control	2007	0	0	7	29	2	0	1	0	0	0	6	0	0	0	0	0	0	0	0
17	Control	2008	0	3	27	29	7	0	1	0	0	0	120	0	0	0	0	0	0	0	0
17	Far Cont	2005	5	3	34	5	10	0	12	0	0	1	26	0	0	0	0	3	0	0	0
17	Far Cont	2006	9	3	37	25	27	0	15	0	0	3	64	0	0	0	0	12	0	0	0
17	Far Cont	2007	11	0	96	5	23	0	11	0	0	3	34	0	0	0	0	0	0	0	0
17	Far Cont	2008	19	0	385	1	39	0	9	0	0	5	133	0	0	0	0	0	0	0	3
17	Cov Cont	2004	4	10	2	0	35	0	0	1	0	1	167	0	6	0	0	0	0	0	0
17	Cov Cont	2005	3	6	4	0	25	0	3	4	0	5	11	0	0	0	1	0	0	0	0
17	Cov Cont	2006	8	6	22	0	50	0	5	20	0	5	26	0	0	0	2	0	0	0	0
17	Cov Cont	2007	8	7	20	0	47	0	5	6	0	1	10	0	0	0	4	0	0	0	0
17	Cov Cont	2008	11	22	83	1	58	0	1	11	0	8	96	0	0	0	4	0	0	0	0
18	Control	2004	0	0	18	0	8	0	0	6	0	21	0	0	79	0	0	0	0	0	0
18	Control	2005	0	6	56	0	21	0	0	31	0	37	1	0	0	0	0	0	0	2	1
18	Control	2006	0	4	30	0	13	0	0	89	0	41	0	0	0	0	0	0	0	0	0

site	Treatment	Year	Cyperaceae sp	Cyperaceae (same within site)	*Acalypha gracilens*	*Ageratina altissima/aromatica*	*Aletris lutea*	*Ambrosia artemisiifolia*	*Symphyotrichum adnatum*	*Symphyotrichum concolor*	*Symphyotrichum dumosum*	*Eurybia hemispherica*	*Symphyotrichum patens*	*Symphyotrichum praealtum*	*Ionactis linariifolius*	*Boltonia diffusa*	*Chrysopsis mariana*	*Cirsium horridulum*	*Conoclinium coelestinum*	*Diodia teres*	Diodia virginiana
15	Control	2008	0	0	22	8	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0
16	Removal	2004	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	31	0	0
16	Removal	2005	0	0	1	0	0	0	0	0	14	0	0	0	0	0	0	0	17	0	0
16	Removal	2006	0	0	18	0	0	0	0	0	35	0	0	0	0	0	0	0	8	0	0
16	Removal	2007	0	12	4	0	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0
16	Removal	2008	0	14	10	0	0	0	0	0	43	0	0	0	0	0	0	0	2	0	0
16	Control	2004	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89
16	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
16	Control	2006	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
16	Control	2007	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1
16	Control	2008	0	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
16	Cov Cont	2004	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0
16	Cov Cont	2005	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
16	Cov Cont	2006	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
16	Cov Cont	2007	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
16	Cov Cont	2008	0	0	21	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Far Cont	2005	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	4	0	0
16	Far Cont	2006	0	0	23	0	0	0	0	0	21	0	0	0	0	0	0	0	2	0	0
16	Far Cont	2007	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	3	0	0
16	Far Cont	2008	0	0	12	0	0	0	0	0	46	0	0	0	0	0	0	0	0	0	0
17	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	35
17	Removal	2005	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	25	44
17	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	38
17	Removal	2007	0	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
17	Removal	2008	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
17	Control	2004	0	0	2	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2005	0	0	0	12	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
17	Control	2006	0	0	14	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2007	0	0	0	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2008	0	0	13	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2005	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2006	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2007	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2008	0	0	38	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Cov Cont	2004	0	0	4	0	0	0	0	0	0	10	0	0	0	16	0	1	0	13	0
17	Cov Cont	2005	0	0	1	13	0	0	0	0	0	10	0	0	0	7	0	1	0	0	0
17	Cov Cont	2006	0	0	9	2	0	0	0	0	0	14	0	0	0	15	0	1	0	11	0
17	Cov Cont	2007	0	0	2	18	0	0	0	0	1	7	0	0	0	2	0	0	0	0	0
17	Cov Cont	2008	0	0	16	17	0	0	0	0	6	12	0	0	0	6	0	0	0	9	0
18	Control	2004	0	0	5	0	0	0	0	4	76	0	1	0	0	0	7	0	0	0	0
18	Control	2005	0	0	1	0	0	0	0	5	34	0	1	0	0	0	9	0	0	0	0
18	Control	2006	0	0	7	0	0	0	0	4	70	0	1	0	0	0	8	0	0	0	0

site	Treatment	Year	*Drosera brevifolia*	*Elephantopus tomentosus*	*Eryngium integrifolium*	*Eryngium yuccifolium*	*Eupatorium album*	*Eupatorium capillifolium*	*Euphorbia corollata*	*Eupatorium perfoliatum*	*Eupatorium rotundifolium*	*Eupatorium semiserratum*	*Gelsemium sempervirens*	*Pseudognaphalium obtusifolium*	*Gratiola pilosa*	*Helianthus angustifolius*	*Helenium flexuosum*	*Houstonia procumbens*	*Helianthus radula*	*Hibiscus aculeatus*	*Hieracium gronovii*
15	Control	2008	20	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0
16	Removal	2004	0	0	0	0	0	0	0	0	0	13	0	0	0	52	0	0	0	0	0
16	Removal	2005	0	0	0	0	0	0	0	0	1	12	0	2	0	93	0	0	0	0	0
16	Removal	2006	0	0	0	0	0	0	1	0	0	9	0	0	0	10	0	0	0	0	0
16	Removal	2007	1	0	0	0	0	0	0	0	0	5	0	6	0	6	0	0	0	0	0
16	Removal	2008	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	0	0	0	0
16	Control	2004	0	0	0	0	0	0	1	0	0	14	0	0	0	93	0	0	0	0	0
16	Control	2005	1	0	0	0	0	0	0	0	0	6	0	1	0	72	0	0	0	0	0
16	Control	2006	0	0	0	0	0	0	0	0	0	5	0	0	0	35	0	0	0	0	0
16	Control	2007	0	0	0	0	0	0	0	0	0	3	0	0	0	13	0	0	0	0	0
16	Control	2008	1	0	0	0	0	0	0	0	0	9	0	0	0	8	0	0	0	0	0
16	Cov Cont	2004	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
16	Cov Cont	2005	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	0	0	0
16	Cov Cont	2006	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
16	Cov Cont	2007	0	0	0	0	0	0	0	0	0	5	0	4	0	8	0	0	0	0	0
16	Cov Cont	2008	0	0	0	0	0	0	1	0	0	3	0	0	0	28	0	0	0	0	0
16	Far Cont	2005	0	8	0	0	0	0	0	0	3	6	0	0	0	2	0	0	0	0	0
16	Far Cont	2006	0	6	0	0	0	0	0	0	6	1	0	0	0	18	0	0	0	0	0
16	Far Cont	2007	0	8	0	0	0	0	0	0	7	1	0	0	0	10	0	0	0	0	0
16	Far Cont	2008	0	5	0	0	0	0	0	0	7	5	0	0	0	43	0	0	0	0	0
17	Removal	2004	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	2
17	Removal	2005	0	23	0	0	0	0	0	0	0	0	5	7	0	0	0	0	0	0	3
17	Removal	2006	13	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	5
17	Removal	2007	1	17	0	0	0	0	0	0	1	0	6	8	0	0	1	0	0	0	5
17	Removal	2008	2	23	0	0	0	0	0	0	1	0	6	1	0	0	0	0	0	0	5
17	Control	2004	0	21	0	0	0	0	0	0	0	0	19	1	0	0	0	0	0	0	3
17	Control	2005	0	58	0	0	0	0	0	0	0	0	30	14	0	0	0	0	0	0	2
17	Control	2006	0	28	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	5
17	Control	2007	0	17	0	0	0	0	0	0	0	2	10	27	0	0	0	0	0	0	5
17	Control	2008	0	25	0	0	0	0	0	0	1	5	7	0	0	0	0	0	0	0	6
17	Far Cont	2005	0	15	0	0	0	0	0	0	0	0	7	6	0	0	0	0	0	0	5
17	Far Cont	2006	0	11	0	0	0	0	0	0	0	0	7	1	0	0	0	0	0	0	4
17	Far Cont	2007	0	33	0	0	0	0	0	0	0	0	6	10	0	0	0	0	0	0	5
17	Far Cont	2008	0	28	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	10
17	Cov Cont	2004	0	20	0	0	0	0	0	0	1	0	4	3	0	0	0	0	0	0	1
17	Cov Cont	2005	0	29	0	0	0	0	0	0	1	0	5	3	0	0	0	5	0	0	1
17	Cov Cont	2006	0	23	0	0	0	0	0	0	1	0	9	0	0	0	0	1	0	0	0
17	Cov Cont	2007	0	11	0	0	0	0	0	0	1	1	11	6	0	0	0	8	0	0	0
17	Cov Cont	2008	0	18	0	0	0	0	0	0	6	1	10	0	0	0	0	10	0	0	0
18	Control	2004	0	0	0	0	0	0	0	0	10	0	0	0	0	19	0	0	0	0	0
18	Control	2005	0	0	0	0	0	0	0	0	6	0	0	0	0	25	0	0	0	0	0
18	Control	2006	0	0	0	0	0	0	0	0	6	0	0	0	0	13	0	0	0	0	0

site	Treatment	Year	*Hyptis alata*	*Hypericum crux-andreae*	*Hypericum hypericoides*	*Hypoxis juncea*	*Hypericum setosum*	*Lactuca graminifolia*	*Lechea minor*	*Liatris* sp	*Linum medium*	*Lobelia brevifolia*	*Lobelia puberula*	*Ludwigia hirtella*	*Mecardonia acuminata*	*Mitchella repens*	*Mitreola sessilifolia*	Unknown Forb Species A	*Oxalis corniculata*	*Phyllanthus caroliniensis*	*Phlox divaricata*
15	Control	2008	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
16	Removal	2004	35	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	24	0
16	Removal	2005	13	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	706	0
16	Removal	2006	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	693	0
16	Removal	2007	5	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1770	0
16	Removal	2008	51	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	1316	0
16	Control	2004	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	100	0
16	Control	2005	10	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	436	0
16	Control	2006	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	296	0
16	Control	2007	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	661	0
16	Control	2008	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	926	0
16	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0
16	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	908	0
16	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	342	0
16	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	489	0
16	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1087	0
16	Far Cont	2005	18	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	209	0
16	Far Cont	2006	10	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1032	0
16	Far Cont	2007	7	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	482	0
16	Far Cont	2008	18	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1352	0
17	Removal	2004	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	12	0
17	Removal	2005	0	0	4	15	0	0	0	1	0	0	0	1	0	0	0	0	0	10	0
17	Removal	2006	0	0	13	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0
17	Removal	2007	0	0	17	0	0	0	0	0	0	0	0	14	0	0	0	0	1	2	0
17	Removal	2008	0	0	2	0	0	0	0	0	0	0	0	7	0	0	0	0	2	3	0
17	Control	2004	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	8	0	0
17	Control	2005	0	0	0	0	1	3	0	15	0	0	0	0	0	0	0	0	25	1	0
17	Control	2006	0	0	0	0	8	1	0	1	0	0	0	0	0	0	0	0	3	0	0
17	Control	2007	0	2	0	0	8	1	0	1	0	0	0	0	0	0	0	0	27	1	0
17	Control	2008	0	0	0	0	18	0	0	1	0	0	0	3	0	0	0	0	16	0	0
17	Far Cont	2005	0	0	27	0	0	1	0	0	0	0	1	0	0	0	0	0	0	8	0
17	Far Cont	2006	1	0	3	5	0	1	0	3	0	0	0	0	0	0	0	0	0	11	0
17	Far Cont	2007	0	0	7	0	0	0	0	3	0	0	0	0	0	0	0	0	0	109	0
17	Far Cont	2008	0	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	99	0
17	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
17	Cov Cont	2005	1	1	3	1	70	0	0	0	0	0	1	0	0	0	0	0	1	0	0
17	Cov Cont	2006	0	0	0	0	19	0	0	0	0	0	1	0	0	0	0	0	0	6	0
17	Cov Cont	2007	0	0	3	0	16	0	0	0	0	0	3	0	0	0	0	0	2	5	0
17	Cov Cont	2008	0	0	0	0	22	0	0	2	0	0	2	2	0	0	0	0	3	39	0
18	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
18	Control	2005	0	0	0	0	0	0	15	0	0	0	0	0	0	0	1	0	1	0	0
18	Control	2006	0	0	0	0	0	0	11	0	0	0	0	0	0	0	2	0	0	0	0

site	Treatment	Year	*Physalis virginiana*	*Pityopsis graminifolia*	*Pluchea foetida*	*Polygala nana*	*Pteridium aquilinum*	*Pycnanthemum albescens*	*Rhexia alifanus*	*Rhexia mariana*	*Ruellia caroliniensis /pedunculata*	*Rudbeckia hirta*	*Rubus trivialis*	*Scutellaria integrifolia*	*Solanum carolinense*	*Solidago odora*	*Solidago rugosa*	*Trachelospermum difforme*	*Trichostema* sp	*Tragia smallii*	Unknown Forb Species B
15	Control	2008	0	2	0	0	0	0	0	0	2	0	4	2	0	0	4	0	0	3	0
16	Removal	2004	1	0	16	0	0	0	0	0	5	0	38	0	0	0	3	0	2	0	0
16	Removal	2005	0	0	5	0	0	0	0	0	6	0	14	1	0	0	7	0	0	0	0
16	Removal	2006	0	0	3	0	0	0	0	0	12	0	22	7	0	0	4	0	0	0	0
16	Removal	2007	0	0	3	0	0	0	0	0	13	0	17	3	0	0	11	0	0	0	0
16	Removal	2008	0	0	4	0	0	0	0	0	17	0	25	2	0	0	16	0	0	0	0
16	Control	2004	0	0	6	0	0	0	0	0	0	0	62	0	0	2	3	0	0	0	0
16	Control	2005	0	0	3	0	0	0	0	0	0	0	33	0	0	1	7	0	0	0	0
16	Control	2006	0	0	2	0	0	0	0	0	0	0	35	0	0	3	3	0	0	0	0
16	Control	2007	0	0	1	0	0	0	0	0	0	0	25	2	0	1	9	0	0	0	0
16	Control	2008	0	0	1	0	0	0	0	0	0	0	37	2	0	4	23	0	0	0	0
16	Cov Cont	2004	0	0	7	0	0	0	0	0	0	0	19	0	0	7	0	0	0	2	0
16	Cov Cont	2005	1	0	5	0	0	0	0	0	0	0	14	0	0	11	0	0	0	2	0
16	Cov Cont	2006	0	0	2	0	0	0	0	0	0	0	12	0	0	7	4	0	0	5	0
16	Cov Cont	2007	0	0	2	0	0	0	0	0	0	0	4	0	0	4	7	0	0	1	0
16	Cov Cont	2008	0	0	5	0	0	0	0	0	1	0	18	0	0	8	13	0	0	2	0
16	Far Cont	2005	0	0	3	0	0	0	0	0	7	0	9	0	0	0	24	0	0	1	0
16	Far Cont	2006	0	0	3	0	0	0	0	0	7	0	13	0	0	0	33	0	0	1	0
16	Far Cont	2007	0	0	4	0	0	0	0	0	5	0	7	2	0	0	39	0	0	1	0
16	Far Cont	2008	0	0	3	0	0	0	0	0	6	1	10	2	0	0	30	0	0	1	0
17	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
17	Removal	2005	0	0	0	0	0	0	0	0	2	0	1	0	0	0	1	0	1	0	0
17	Removal	2006	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0
17	Removal	2007	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0
17	Removal	2008	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0
17	Control	2004	0	12	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
17	Control	2005	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
17	Control	2006	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
17	Control	2007	0	33	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
17	Control	2008	0	8	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0
17	Far Cont	2005	2	0	0	0	0	0	0	0	0	0	0	0	0	7	1	0	0	0	0
17	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
17	Far Cont	2007	0	0	0	0	0	0	0	1	0	0	3	0	0	2	0	0	0	0	0
17	Far Cont	2008	0	1	0	0	0	0	0	11	0	0	6	0	0	3	2	0	0	0	0
17	Cov Cont	2004	0	31	0	0	0	0	0	0	2	0	2	0	0	3	0	0	2	0	0
17	Cov Cont	2005	1	47	0	0	0	0	0	0	2	0	1	3	0	2	1	0	1	0	0
17	Cov Cont	2006	0	46	0	0	0	0	0	0	2	0	1	4	0	0	1	0	0	0	0
17	Cov Cont	2007	0	85	0	0	0	0	0	0	0	0	4	4	0	0	2	0	0	0	0
17	Cov Cont	2008	0	98	0	0	0	0	0	1	2	0	1	7	0	0	1	0	0	0	0
18	Control	2004	0	0	0	0	0	6	0	0	2	2	7	0	0	12	13	0	0	0	0
18	Control	2005	0	0	0	0	0	5	0	0	1	3	8	0	0	7	14	0	0	1	0
18	Control	2006	0	0	0	0	0	7	0	0	0	4	7	0	0	1	1	0	0	1	0

site	Treatment	Year	Unknown Forb Species C	Unknown Forb Species D	Unknown Forb Species E	Unknown Forb Species F	Unknown Forb Species G	Unknown Forb Species H	Unidentified Forbs	Unknown Forb Species I	Unknown Forb Species J	Unknown Forb Species K	Unidentified basal rosette	*Viola ×primulifolia*	*Viola septemloba*	*Andropogon gyrans*	*Aristida purpurascens*	*Chasmanthium laxum*	*Ctenium aromaticum*	*Agrostis* sp	*Gymnopogon brevifolius*
15	Control	2008	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	0	0	0
16	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
16	Removal	2007	0	0	0	0	0	0	0	0	9	0	0	0	0	10	0	12	0	3	0
16	Removal	2008	0	0	0	0	0	0	0	0	6	0	0	0	0	10	0	0	0	0	0
16	Control	2004	0	0	0	0	0	0	8	0	0	0	0	16	0	0	0	0	0	0	0
16	Control	2005	0	0	0	0	0	0	0	0	0	0	0	7	0	1	0	0	0	0	0
16	Control	2006	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
16	Control	2007	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
16	Control	2008	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0
16	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2006	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2008	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
16	Far Cont	2007	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
16	Far Cont	2008	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	7	0
17	Removal	2004	0	0	0	0	0	0	0	0	0	0	1	26	0	7	7	0	0	0	0
17	Removal	2005	12	0	0	0	0	0	1	0	0	0	0	0	0	6	37	0	0	0	0
17	Removal	2006	14	0	0	0	0	0	0	0	0	0	0	0	0	3	63	0	0	0	0
17	Removal	2007	14	0	0	0	0	0	0	0	0	0	0	1	0	8	100	0	0	0	0
17	Removal	2008	32	0	0	0	0	0	0	0	0	0	0	0	0	3	212	0	0	0	0
17	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	41	0	0	0	0	0
17	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	41	0	0	0	0	0
17	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	98	0	0	0	0	0
17	Control	2007	0	0	0	0	0	0	1	0	0	0	0	0	0	98	0	0	0	0	0
17	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0
17	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
17	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2007	0	0	0	0	0	0	0	0	10	0	0	7	0	3	0	0	0	0	0
17	Far Cont	2008	0	0	0	0	0	0	0	0	4	0	0	2	0	4	0	0	0	1	0
17	Cov Cont	2004	215	0	0	0	0	0	9	0	0	0	0	12	0	0	0	0	0	0	0
17	Cov Cont	2005	268	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
17	Cov Cont	2006	147	0	0	0	0	0	0	0	4	0	0	0	0	2	0	0	0	0	0
17	Cov Cont	2007	87	0	0	0	0	0	0	0	3	0	0	2	0	6	0	0	0	0	0
17	Cov Cont	2008	355	0	0	0	0	0	0	9	3	0	4	1	0	7	0	0	0	0	0
18	Control	2004	0	0	0	24	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0
18	Control	2005	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
18	Control	2006	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

site	Treatment	Year	*Paspalum floridanum*	*Paspalum notatum*	*Schizachyrium scoparium*	*Schizachyrium tenerum*	Unknown Grass A	Unknown Grass B	Unknown Grass C	Unknown Grass D	Unknown Grass E	Unknown Grass F	Unidentified Poaceae	Poaceae (same within site)	Unknown Grass G	*Baptisia bracteata*	*Centrosema virginianum*	*Chamaecrista nicitians*	*Clitoria mariana*	*Crotalaria rotundifolia*	*Desmodium ciliare*
15	Control	2008	0	0	202	1333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2007	22	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2008	10	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2004	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2005	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2006	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2007	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2008	2	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2004	0	0	58	0	0	0	0	9	0	0	0	0	0	0	1	0	0	0	0
16	Cov Cont	2005	0	0	104	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
16	Cov Cont	2006	0	0	69	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0
16	Cov Cont	2007	0	0	114	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
16	Cov Cont	2008	0	0	84	0	0	0	0	8	0	0	0	0	0	0	5	0	0	0	0
16	Far Cont	2005	0	0	38	7	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
16	Far Cont	2006	0	0	33	14	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
16	Far Cont	2007	0	0	35	29	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
16	Far Cont	2008	0	0	36	58	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
17	Removal	2004	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0
17	Removal	2005	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Removal	2006	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
17	Removal	2007	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Removal	2008	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2004	0	0	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
17	Control	2005	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
17	Control	2006	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
17	Control	2007	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2008	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Cov Cont	2004	0	0	39	0	0	0	0	0	0	0	0	0	39	0	0	0	0	0	0
17	Cov Cont	2005	0	0	42	0	0	0	0	0	0	0	0	0	12	0	0	3	0	1	0
17	Cov Cont	2006	0	0	44	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0
17	Cov Cont	2007	0	0	97	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0
17	Cov Cont	2008	0	0	103	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0
18	Control	2004	0	0	186	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
18	Control	2005	0	0	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Control	2006	0	0	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Desmodium lineatum*	*Desmodium tenuifolium*	*Galactia erecta*	*Galactia volubilis*	*Lespedeza capitata*	*Lespedeza repens*	*Rhynchosia reniformis*	Unidentified Fabaceae seedlings	*Stylosanthes biflora*	*Strophostyles umbellata*	*Tephrosia florida*	*Tephrosia spicata*	*Tephrosia onobrychoides/hispidula*	Fabaceae sp	Fabaceae vine	Fabaceae	*Pinus palustris*	*Pinus taeda*	*Acer rubrum*
15	Control	2008	0	0	0	0	0	0	0	0	126	0	0	11	0	0	0	0	0	0	0
16	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
16	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2005	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0
16	Control	2006	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
16	Control	2007	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
16	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
16	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
16	Far Cont	2005	0	0	0	0	0	0	0	0	7	4	0	1	0	0	0	0	0	2	0
16	Far Cont	2006	0	0	0	0	0	0	0	0	17	3	0	3	0	0	0	0	0	0	0
16	Far Cont	2007	0	0	0	0	0	0	0	0	5	6	0	1	0	0	0	0	0	0	0
16	Far Cont	2008	0	0	0	0	0	0	0	0	10	5	0	3	0	0	0	0	0	0	0
17	Removal	2004	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	0	5	1	0
17	Removal	2005	0	0	0	1	0	9	0	0	0	0	0	0	0	0	0	0	4	5	0
17	Removal	2006	0	0	0	0	0	3	0	1	0	0	0	1	0	0	0	0	3	0	0
17	Removal	2007	0	0	0	0	0	4	0	0	1	0	0	1	0	0	0	0	3	0	0
17	Removal	2008	0	0	5	0	0	1	0	0	1	0	0	0	0	0	0	0	3	0	0
17	Control	2004	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
17	Control	2005	0	0	3	9	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0
17	Control	2006	0	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0
17	Control	2007	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	0	1	1	0
17	Control	2008	1	0	5	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
17	Far Cont	2005	7	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
17	Far Cont	2006	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2007	4	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
17	Far Cont	2008	10	0	12	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
17	Cov Cont	2004	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	7	0	0
17	Cov Cont	2005	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	17	0
17	Cov Cont	2006	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0
17	Cov Cont	2007	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	1	0
17	Cov Cont	2008	0	0	2	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0
18	Control	2004	32	0	0	1	0	3	0	0	10	0	0	2	0	0	0	0	0	0	0
18	Control	2005	25	0	0	0	0	0	0	0	21	15	0	3	0	1	0	0	0	0	0
18	Control	2006	31	0	0	0	0	3	0	0	8	12	0	4	0	0	0	0	0	0	0

site	Treatment	Year	*Aralia spinosa*	*Callicarpa americana*	*Campsis radicans*	*Diospyros virginiana*	*Gaylussacia dumosa*	*Ilex glabra*	*Ilex vomitoria*	*Ligustrum sinense*	*Liquidambar styraciflua*	*Lonicera japonica*	*Malus angustifolia*	*Morella cerifera*	*Nyssa sylvatica*	*Parthenocissus quinquefolia*	*Prunus serotina*	*Quercus falcata*	*Quercus nigra*	*Quercus virginiana*	*Rhus copallinum*
15	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2007	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16	Control	2008	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Far Cont	2005	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
16	Far Cont	2006	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
16	Far Cont	2007	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
16	Far Cont	2008	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
17	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17	Removal	2006	0	0	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
17	Removal	2007	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17	Removal	2008	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17	Control	2007	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2008	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Cov Cont	2004	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
17	Cov Cont	2005	0	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
17	Cov Cont	2006	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
17	Cov Cont	2007	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
17	Cov Cont	2008	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
18	Control	2004	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	0
18	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0
18	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0

site	Treatment	Year	*Rubus cuneifolius*	*Sassafras albidum*	*Triadica sebifera*	*Smilax bona-nox*	*Smilax glauca*	*Smilax rotundifolia*	*Toxicodendron radicans*	Unidentified *Vaccineum*	*Vaccinium darrowii*	*Vaccinium elliottii*	*Vaccinium arboreum*	*Vaccinium stamineum*
15	Control	2008	0	0	0	0	0	0	0	0	0	0	5	0
16	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2005	2	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
16	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0
16	Control	2004	2	0	0	0	0	0	0	0	0	0	0	0
16	Control	2005	0	0	0	0	0	0	0	0	0	0	2	0
16	Control	2006	1	0	0	0	0	0	0	0	0	0	2	0
16	Control	2007	1	0	0	0	0	0	0	0	0	0	1	0
16	Control	2008	1	0	0	0	0	0	0	0	0	0	1	0
16	Cov Cont	2004	2	0	0	3	0	0	0	0	0	0	0	0
16	Cov Cont	2005	3	0	0	1	0	0	0	0	0	0	0	0
16	Cov Cont	2006	2	0	0	4	0	0	0	0	0	0	0	0
16	Cov Cont	2007	2	0	0	0	3	0	0	0	0	0	0	0
16	Cov Cont	2008	2	0	0	0	3	0	0	0	0	0	0	0
16	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	8	0
16	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	7	0
16	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	5	0
16	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	7	0
17	Removal	2004	1	0	0	1	0	0	0	0	0	0	0	0
17	Removal	2005	0	0	0	1	0	0	0	0	0	0	0	0
17	Removal	2006	0	0	0	1	0	0	0	0	0	0	0	0
17	Removal	2007	0	0	0	1	0	0	0	0	0	0	0	0
17	Removal	2008	0	0	0	1	0	0	0	0	0	0	0	0
17	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0
17	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2006	1	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
17	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
17	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
17	Cov Cont	2005	2	0	0	0	0	0	0	0	0	0	0	0
17	Cov Cont	2006	1	0	0	0	0	0	0	0	0	0	0	0
17	Cov Cont	2007	1	0	0	0	0	0	0	0	0	0	0	0
17	Cov Cont	2008	1	0	0	0	0	0	0	0	0	0	0	0
18	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0
18	Control	2005	0	0	0	0	0	0	0	0	0	0	0	1
18	Control	2006	0	0	0	0	0	0	0	0	0	0	0	4

site	Treatment	Year	*Dichanthelium aciculare*	*Dichanthelium acuminatum*	*Dichanthelium ensifolium*	*Dichanthelium laxiflorum*	Dichanthelium ovale	*Dichanthelium scoparium*	*Dichanthelium sphaerocarpon*	*Dichanthelium strigosum*	*Dichanthelium dichotomum*	*Panicum anceps*	*Panicum verrucosum*	*Panicum virgatum*	*Dichanthelium* seedlings	*Fimbristylis puberula*	*Rhynchospora glomerata*	*Rhynchospora rariflora*	*Scleria* sp	*Scleria ciliata*	*Scleria pauciflora*
18	Control	2007	0	6	60	0	13	0	0	30	0	6	0	0	0	0	0	0	0	0	1
18	Control	2008	1	15	246	0	31	0	5	150	0	31	0	0	0	0	0	0	0	0	2
18	Cov Cont	2004	2	4	6	0	7	0	0	0	0	0	0	0	226	0	9	0	0	0	43
18	Cov Cont	2005	0	2	203	0	8	0	1	4	0	0	0	0	0	0	0	0	0	3	2
18	Cov Cont	2006	0	8	249	0	5	0	3	10	0	0	0	0	0	0	0	0	0	7	2
18	Cov Cont	2007	0	0	192	0	12	0	1	10	0	0	0	0	0	0	0	0	0	2	2
18	Cov Cont	2008	0	15	669	0	27	0	1	3	0	1	0	0	0	0	0	0	0	19	15
18	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
18	Removal	2005	0	10	34	0	0	0	0	19	0	15	0	0	0	0	0	0	0	12	0
18	Removal	2006	0	43	58	0	0	0	0	32	0	13	0	0	0	0	0	0	0	19	0
18	Removal	2007	0	34	19	0	1	0	0	11	0	1	0	0	0	0	0	0	0	7	0
18	Removal	2008	0	54	120	0	67	0	0	22	0	10	0	0	0	0	0	5	0	49	0
18	Far Cont	2005	0	18	112	0	12	0	0	4	0	26	0	0	0	0	0	0	0	3	5
18	Far Cont	2006	0	10	157	0	4	0	0	0	0	22	0	0	0	0	0	0	0	6	13
18	Far Cont	2007	0	24	65	0	7	0	0	0	0	29	0	0	0	0	0	0	0	13	0
18	Far Cont	2008	0	24	205	0	22	0	2	0	0	27	0	0	0	0	0	4	0	18	13
19	Far Cont	2005	0	0	6	0	24	0	0	0	0	0	4	0	0	0	0	1	0	0	0
19	Far Cont	2006	0	2	13	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2007	0	15	110	4	32	0	4	0	0	0	2	0	0	0	0	0	0	0	0
19	Far Cont	2008	0	24	42	4	18	0	1	0	0	0	2	0	0	0	0	0	0	0	0
19	Control	2004	4	1	35	0	48	0	0	0	0	45	0	0	0	0	13	0	0	0	6
19	Control	2005	0	8	8	0	23	0	0	0	0	58	0	0	0	0	3	0	0	0	6
19	Control	2006	0	12	26	0	23	0	0	0	0	55	0	0	0	0	1	0	0	0	1
19	Control	2007	0	12	71	0	42	0	1	0	0	55	0	0	0	0	1	0	0	0	9
19	Control	2008	0	19	73	0	52	0	1	0	0	89	0	0	0	0	3	0	0	0	3
19	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Removal	2005	0	2	0	0	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0
19	Removal	2006	0	6	4	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0
19	Removal	2007	0	9	24	0	54	0	5	0	0	0	1	0	0	0	0	0	0	0	0
19	Removal	2008	0	10	5	0	8	0	0	0	0	0	2	0	0	0	0	0	0	0	0
19	Cov Cont	2004	0	21	36	0	33	0	5	0	0	0	0	0	0	0	0	0	0	18	1
19	Cov Cont	2005	0	16	4	0	24	0	0	0	0	0	0	2	0	0	0	0	0	16	0
19	Cov Cont	2006	0	13	6	0	24	0	0	0	0	0	0	0	0	0	0	0	0	19	0
19	Cov Cont	2007	0	8	24	0	80	0	4	0	0	0	0	0	0	0	0	0	0	34	0
19	Cov Cont	2008	0	23	43	0	87	0	4	0	0	0	0	0	0	0	0	0	0	32	0
20	Control	2004	0	8	4	0	8	0	6	0	0	1	7	0	0	0	0	14	0	3	0
20	Control	2005	0	5	4	2	10	0	2	0	0	0	18	0	0	0	0	14	0	5	0
20	Control	2006	0	6	5	4	2	0	1	0	0	2	16	0	0	0	0	21	0	4	0
20	Control	2007	0	7	47	2	3	0	0	0	0	8	324	0	0	0	0	15	0	16	0
20	Control	2008	0	3	64	1	13	0	5	1	0	0	1	0	0	0	0	10	0	10	3
20	Cov Cont	2004	0	0	3	0	13	0	8	0	0	18	4	0	0	0	11	1	0	0	3
20	Cov Cont	2005	0	0	3	0	25	0	4	2	0	19	793	0	0	0	12	0	0	0	3

site	Treatment	Year	Cyperaceae sp	Cyperaceae (same within site)	*Acalypha gracilens*	*Ageratina altissima/aromatica*	*Aletris lutea*	*Ambrosia artemisiifolia*	*Symphyotrichum adnatum*	*Symphyotrichum concolor*	*Symphyotrichum dumosum*	*Eurybia hemispherica*	*Symphyotrichum patens*	*Symphyotrichum praealtum*	*Ionactis linariifolius*	*Boltonia diffusa*	*Chrysopsis mariana*	*Cirsium horridulum*	*Conoclinium coelestinum*	*Diodia teres*	Diodia virginiana
18	Control	2007	0	0	1	0	0	0	0	4	25	0	0	0	0	0	7	0	0	0	0
18	Control	2008	0	6	7	0	0	0	0	3	75	0	1	0	0	0	3	0	0	0	0
18	Cov Cont	2004	0	0	3	0	0	0	9	0	10	0	0	0	2	0	0	0	0	0	0
18	Cov Cont	2005	0	0	0	0	0	0	4	0	11	0	0	0	2	0	0	0	0	0	0
18	Cov Cont	2006	0	0	6	0	0	0	2	0	13	0	0	0	0	0	0	0	0	0	0
18	Cov Cont	2007	0	0	2	0	0	0	2	0	8	0	0	0	0	0	0	0	0	0	0
18	Cov Cont	2008	0	0	17	0	0	0	4	0	24	0	0	0	3	0	0	0	0	0	0
18	Removal	2004	0	0	2	0	0	0	53	5	23	0	0	0	0	0	8	0	0	0	0
18	Removal	2005	0	0	0	0	0	0	19	7	21	0	0	0	0	0	8	0	1	0	0
18	Removal	2006	0	0	1	0	0	0	19	8	21	0	0	0	0	0	8	0	0	0	0
18	Removal	2007	0	0	1	0	0	0	7	7	10	0	0	0	0	0	10	0	0	0	0
18	Removal	2008	0	0	0	0	0	0	32	9	37	0	0	0	0	0	12	0	0	0	0
18	Far Cont	2005	0	0	1	0	0	0	0	6	12	0	0	0	0	1	0	0	0	0	0
18	Far Cont	2006	0	0	6	0	0	0	0	3	14	0	0	0	0	0	0	0	0	0	0
18	Far Cont	2007	0	0	1	1	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0
18	Far Cont	2008	0	0	14	0	0	0	0	7	22	0	0	0	0	3	0	0	0	0	0
19	Far Cont	2005	0	0	14	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2006	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2007	0	0	20	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2008	0	0	3	13	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
19	Control	2004	0	0	2	0	0	0	5	0	8	0	1	0	1	0	2	0	0	0	0
19	Control	2005	0	0	10	0	0	0	11	0	18	0	1	0	3	0	3	0	0	0	0
19	Control	2006	0	0	0	0	0	0	4	0	10	0	2	0	1	0	0	0	0	0	0
19	Control	2007	0	0	47	0	0	0	16	0	11	0	1	0	3	0	0	0	0	0	0
19	Control	2008	0	0	5	5	0	0	13	0	27	0	12	0	3	0	0	0	0	0	0
19	Removal	2004	0	0	1	14	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
19	Removal	2005	0	0	18	13	0	0	22	0	4	0	0	0	0	0	0	0	0	0	0
19	Removal	2006	0	0	3	8	0	0	18	0	8	0	0	0	0	0	0	0	0	0	0
19	Removal	2007	0	0	12	4	0	0	37	0	3	0	0	0	0	0	0	0	0	0	0
19	Removal	2008	0	0	1	44	0	0	26	0	4	0	4	0	0	0	0	0	0	0	0
19	Cov Cont	2004	0	0	0	10	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
19	Cov Cont	2005	0	0	7	0	0	0	7	0	10	0	1	0	0	0	0	0	0	0	0
19	Cov Cont	2006	0	0	4	0	0	0	1	0	5	0	2	0	0	0	0	0	0	0	0
19	Cov Cont	2007	0	0	2	0	0	0	15	0	3	0	4	0	0	0	0	0	0	0	0
19	Cov Cont	2008	0	0	0	16	0	0	13	0	9	0	5	0	0	0	0	0	0	0	0
20	Control	2004	0	7	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	18
20	Control	2005	1	6	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	39
20	Control	2006	0	14	1	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	20
20	Control	2007	0	5	2	0	0	1	0	0	3	0	0	1	0	0	0	0	0	0	61
20	Control	2008	7	9	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6
20	Cov Cont	2004	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2005	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Drosera brevifolia*	*Elephantopus tomentosus*	*Eryngium integrifolium*	*Eryngium yuccifolium*	*Eupatorium album*	*Eupatorium capillifolium*	*Euphorbia corollata*	*Eupatorium perfoliatum*	*Eupatorium rotundifolium*	*Eupatorium semiserratum*	*Gelsemium sempervirens*	*Pseudognaphalium obtusifolium*	*Gratiola pilosa*	*Helianthus angustifolius*	*Helenium flexuosum*	*Houstonia procumbens*	*Helianthus radula*	*Hibiscus aculeatus*	*Hieracium gronovii*
18	Control	2007	0	0	0	0	0	0	0	0	4	0	0	0	0	13	0	0	0	0	0
18	Control	2008	20	0	0	0	0	0	0	0	8	0	0	0	0	13	0	0	0	0	0
18	Cov Cont	2004	0	0	0	0	0	0	0	0	23	0	0	0	0	27	0	0	0	0	0
18	Cov Cont	2005	0	0	0	0	0	0	0	0	15	0	0	0	0	31	0	0	0	0	0
18	Cov Cont	2006	0	0	0	0	0	0	1	0	12	0	0	0	0	28	0	0	0	0	0
18	Cov Cont	2007	0	0	0	0	0	0	0	0	4	0	0	0	0	8	0	0	0	0	0
18	Cov Cont	2008	0	0	0	0	0	0	3	0	30	0	0	0	0	12	0	0	0	0	0
18	Removal	2004	0	0	0	0	0	0	0	0	3	0	0	0	0	46	0	0	0	0	0
18	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0	0	0	0	0
18	Removal	2006	0	0	0	0	0	0	0	0	2	0	0	0	0	16	0	0	0	0	0
18	Removal	2007	0	0	0	0	0	0	0	0	3	0	0	1	0	4	0	0	0	0	0
18	Removal	2008	0	0	0	0	0	0	0	0	8	0	0	0	0	10	0	0	0	0	0
18	Far Cont	2005	0	4	0	0	0	0	0	0	2	0	0	0	0	19	0	0	0	0	0
18	Far Cont	2006	0	4	0	0	0	0	1	0	0	0	0	0	0	10	0	0	0	0	0
18	Far Cont	2007	0	17	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
18	Far Cont	2008	11	10	0	0	0	0	2	0	1	0	0	0	0	15	0	0	0	0	0
19	Far Cont	2005	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2006	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2007	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2008	0	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
19	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
19	Control	2005	0	0	0	0	0	0	11	0	0	0	0	0	0	8	0	0	0	0	0
19	Control	2006	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0
19	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0
19	Control	2008	0	1	0	0	0	0	3	0	0	0	0	0	0	3	0	0	0	0	0
19	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Removal	2005	0	0	0	0	2	0	11	0	0	0	0	0	0	0	0	0	0	0	0
19	Removal	2006	0	0	0	0	3	0	2	0	0	0	0	1	0	0	0	0	0	0	0
19	Removal	2007	0	0	0	0	6	0	5	0	0	0	0	0	0	0	0	0	0	0	0
19	Removal	2008	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0
19	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Cov Cont	2005	0	0	0	0	1	0	4	0	0	0	0	0	0	1	0	0	0	0	0
19	Cov Cont	2006	0	0	0	0	3	0	1	0	0	0	0	0	0	4	0	0	0	0	0
19	Cov Cont	2007	0	0	0	0	4	0	0	0	0	0	0	0	0	5	0	0	0	0	0
19	Cov Cont	2008	0	0	0	0	3	0	1	0	0	0	0	0	0	2	0	0	0	0	0
20	Control	2004	0	0	0	0	0	0	0	6	0	0	0	0	0	38	0	0	0	0	0
20	Control	2005	0	0	0	0	0	0	0	10	0	0	0	0	0	77	0	0	0	0	0
20	Control	2006	0	0	0	0	0	0	0	2	0	1	0	0	0	12	0	0	0	0	0
20	Control	2007	0	0	0	0	0	0	0	9	1	0	0	0	0	4	0	0	0	0	0
20	Control	2008	0	0	0	0	0	0	0	4	1	0	0	0	0	1	0	0	0	0	0
20	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0	0	0	0	0
20	Cov Cont	2005	0	0	0	0	0	0	0	0	1	0	0	0	0	52	0	0	0	0	0

site	Treatment	Year	*Hyptis alata*	*Hypericum crux-andreae*	*Hypericum hypericoides*	*Hypoxis juncea*	*Hypericum setosum*	*Lactuca graminifolia*	*Lechea minor*	*Liatris* sp	*Linum medium*	*Lobelia brevifolia*	*Lobelia puberula*	*Ludwigia hirtella*	*Mecardonia acuminata*	*Mitchella repens*	*Mitreola sessilifolia*	Unknown Forb Species A	*Oxalis corniculata*	*Phyllanthus caroliniensis*	*Phlox divaricata*
18	Control	2007	0	0	0	0	0	0	8	0	0	0	0	0	0	0	4	0	4	0	0
18	Control	2008	0	0	0	0	0	0	27	0	0	0	0	0	0	0	4	0	2	0	0
18	Cov Cont	2004	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Cov Cont	2005	0	4	0	0	0	0	0	0	0	0	0	0	0	0	5	0	4	0	0
18	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
18	Cov Cont	2007	0	0	0	0	1	0	0	0	0	0	0	0	0	0	13	0	7	0	0
18	Cov Cont	2008	0	1	0	0	0	0	0	0	0	0	0	0	0	0	16	0	13	0	0
18	Removal	2004	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0
18	Removal	2005	0	1	0	0	0	0	15	0	0	0	0	0	0	0	1	0	5	0	0
18	Removal	2006	0	1	0	0	0	0	13	0	0	0	0	0	0	0	0	0	1	0	0
18	Removal	2007	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	2	0	0
18	Removal	2008	0	1	0	0	0	0	20	0	0	0	0	0	0	0	0	0	2	1	0
18	Far Cont	2005	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
18	Far Cont	2007	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0
19	Far Cont	2005	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2006	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2007	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Control	2004	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19	Control	2005	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19	Control	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19	Control	2007	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19	Control	2008	0	1	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19	Removal	2004	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
19	Removal	2005	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
19	Removal	2006	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Removal	2007	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
19	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19	Cov Cont	2005	0	0	0	14	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19	Cov Cont	2008	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Control	2004	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0
20	Control	2005	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2	0
20	Control	2006	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	5	0
20	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	11	0
20	Control	2008	1	1	0	0	0	0	0	0	0	0	5	0	0	0	0	0	13	2	0
20	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0
20	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5	22	0

site	Treatment	Year	*Physalis virginiana*	*Pityopsis graminifolia*	*Pluchea foetida*	*Polygala nana*	*Pteridium aquilinum*	*Pycnanthemum albescens*	*Rhexia alifanus*	*Rhexia mariana*	*Ruellia caroliniensis /pedunculata*	*Rudbeckia hirta*	*Rubus trivialis*	*Scutellaria integrifolia*	*Solanum carolinense*	*Solidago odora*	*Solidago rugosa*	*Trachelospermum difforme*	*Trichostema* sp	*Tragia smallii*	Unknown Forb Species B
18	Control	2007	0	0	0	0	0	7	0	0	1	5	7	0	0	1	1	0	0	1	0
18	Control	2008	0	0	0	0	0	8	0	0	1	2	14	3	0	2	3	0	0	0	0
18	Cov Cont	2004	0	73	0	0	0	0	0	0	0	0	5	0	0	1	0	0	0	1	0
18	Cov Cont	2005	0	66	0	0	0	0	0	0	0	2	4	2	0	2	0	0	0	1	0
18	Cov Cont	2006	0	51	0	0	0	0	0	0	0	1	4	0	0	2	0	0	0	2	0
18	Cov Cont	2007	0	28	0	0	0	0	0	0	0	1	3	1	0	1	0	0	0	1	0
18	Cov Cont	2008	0	36	0	0	0	0	0	0	0	0	7	2	0	1	0	0	0	2	0
18	Removal	2004	0	0	0	0	0	7	15	0	0	0	0	0	0	15	1	0	0	0	0
18	Removal	2005	0	0	0	0	0	9	13	0	0	0	0	0	0	8	4	0	0	0	0
18	Removal	2006	0	0	0	0	0	3	13	0	0	0	0	0	0	5	2	0	0	0	0
18	Removal	2007	0	0	0	0	0	1	10	0	0	0	0	1	0	3	1	0	0	0	0
18	Removal	2008	0	1	0	0	0	12	25	0	0	0	2	0	0	7	1	0	0	0	0
18	Far Cont	2005	0	3	0	0	2	1	0	0	0	0	2	1	0	3	5	0	0	3	0
18	Far Cont	2006	0	4	0	0	1	0	0	0	0	0	2	0	0	1	2	0	0	2	0
18	Far Cont	2007	0	2	0	0	1	0	0	0	0	0	1	1	0	1	2	0	0	1	7
18	Far Cont	2008	0	6	0	0	1	0	0	0	0	1	3	1	0	5	4	0	0	2	5
19	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	5	0	0	8	0	0	0	2	0
19	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	1	0	0	7	0	0	0	0	0
19	Far Cont	2007	0	3	0	0	0	0	0	0	0	0	1	0	0	9	0	0	0	0	0
19	Far Cont	2008	0	8	0	0	0	0	0	0	0	0	2	0	0	8	0	0	0	0	0
19	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0
19	Control	2005	0	0	0	0	0	0	0	0	2	0	0	0	0	4	0	0	0	0	0
19	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
19	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
19	Control	2008	0	1	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	1	0
19	Removal	2004	0	8	0	0	0	0	0	0	0	0	2	0	0	100	0	0	0	0	0
19	Removal	2005	0	9	0	0	0	0	0	0	0	0	4	0	0	66	0	0	0	0	0
19	Removal	2006	0	12	0	0	0	0	0	0	0	0	6	0	0	22	0	0	0	0	0
19	Removal	2007	0	20	0	0	0	0	0	0	1	0	10	0	0	28	0	0	0	0	0
19	Removal	2008	0	24	0	0	0	0	0	0	0	0	16	0	0	26	0	0	0	0	0
19	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	4	0	0	52	0	0	0	0	0
19	Cov Cont	2005	0	0	0	0	0	0	0	0	1	0	2	0	0	6	0	0	0	1	0
19	Cov Cont	2006	0	0	0	0	0	0	0	0	1	0	1	0	0	3	0	0	0	0	0
19	Cov Cont	2007	0	0	0	0	0	0	0	0	1	0	1	0	0	6	0	0	0	0	0
19	Cov Cont	2008	0	1	0	0	0	0	0	0	1	0	2	0	0	38	0	0	0	0	0
20	Control	2004	0	0	0	0	0	0	0	0	8	0	0	0	0	0	13	0	0	0	0
20	Control	2005	0	0	0	0	0	0	0	0	8	0	0	0	0	0	13	0	0	0	0
20	Control	2006	0	0	0	0	0	0	0	0	11	0	0	1	0	1	11	0	0	0	0
20	Control	2007	0	0	0	0	0	0	0	0	4	0	0	1	0	0	17	0	0	0	0
20	Control	2008	0	0	0	0	0	0	0	0	7	0	0	1	0	0	20	0	0	0	0
20	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	1	0	0	0	34	0	6	0	0
20	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	1	6	0	0	43	0	0	0	0

site	Treatment	Year	Unknown Forb Species C	Unknown Forb Species D	Unknown Forb Species E	Unknown Forb Species F	Unknown Forb Species G	Unknown Forb Species H	Unidentified Forbs	Unknown Forb Species I	Unknown Forb Species J	Unknown Forb Species K	Unidentified basal rosette	*Viola ×primulifolia*	*Viola septemloba*	*Andropogon gyrans*	*Aristida purpurascens*	*Chasmanthium laxum*	*Ctenium aromaticum*	*Agrostis* sp	*Gymnopogon brevifolius*
18	Control	2007	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
18	Control	2008	0	0	0	0	0	0	0	0	0	0	0	2	0	1	8	0	0	0	0
18	Cov Cont	2004	0	0	0	0	0	0	1	0	0	0	0	0	7	0	0	0	0	0	0
18	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
18	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1
18	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0
18	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	0	3
18	Removal	2004	0	0	0	3	2	0	0	0	0	0	19	0	0	0	0	0	0	0	0
18	Removal	2005	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Removal	2006	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
18	Removal	2007	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Removal	2008	0	0	0	2	4	0	5	0	0	0	0	2	0	0	0	0	0	0	2
18	Far Cont	2005	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
18	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
18	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
18	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
19	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	41
19	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	20
19	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
19	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
19	Control	2004	0	0	0	0	0	0	6	0	0	0	1	0	0	0	5	0	0	0	2
19	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
19	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
19	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
19	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0
19	Removal	2004	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
19	Removal	2005	0	0	0	0	0	0	2	0	0	0	4	0	0	0	0	0	0	0	48
19	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54
19	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54
19	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
19	Cov Cont	2004	0	0	0	0	0	0	2	0	0	0	1	4	0	0	0	0	0	0	0
19	Cov Cont	2005	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	0	0	0
19	Cov Cont	2006	0	0	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0	0	0
19	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
19	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	9	1	0	0	0	0	0	0
20	Control	2004	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0
20	Control	2005	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
20	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Control	2008	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	4	0	0	56	0	0	0	0
20	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	2	0	0	34	0	0	0	0

site	Treatment	Year	*Paspalum floridanum*	*Paspalum notatum*	*Schizachyrium scoparium*	*Schizachyrium tenerum*	Unknown Grass A	Unknown Grass B	Unknown Grass C	Unknown Grass D	Unknown Grass E	Unknown Grass F	Unidentified Poaceae	Poaceae (same within site)	Unknown Grass G	*Baptisia bracteata*	*Centrosema virginianum*	*Chamaecrista nictitans*	*Clitoria mariana*	*Crotalaria rotundifolia*	*Desmodium ciliare*
18	Control	2007	0	0	217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Control	2008	0	0	366	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
18	Cov Cont	2004	0	0	123	133	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
18	Cov Cont	2005	0	0	155	160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Cov Cont	2006	0	0	159	453	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Cov Cont	2007	0	0	151	564	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Cov Cont	2008	0	0	218	293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Removal	2004	0	0	151	0	0	48	0	0	76	0	0	0	0	0	2	0	0	0	0
18	Removal	2005	0	0	226	0	0	57	0	0	71	0	0	0	0	0	0	0	0	0	0
18	Removal	2006	0	0	203	0	0	79	0	0	106	0	0	0	0	0	0	0	0	0	0
18	Removal	2007	0	0	186	0	0	92	0	0	141	0	0	0	0	0	0	0	0	0	0
18	Removal	2008	0	0	355	0	0	96	7	0	84	0	0	0	0	0	0	0	0	0	0
18	Far Cont	2005	0	0	99	142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Far Cont	2006	0	0	89	225	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
18	Far Cont	2007	0	0	133	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Far Cont	2008	0	0	161	323	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2005	0	0	1	407	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0
19	Far Cont	2006	0	0	1	745	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0
19	Far Cont	2007	0	0	3	733	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0
19	Far Cont	2008	0	0	3	866	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
19	Control	2004	0	0	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Control	2005	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Control	2006	0	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Control	2007	0	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
19	Control	2008	0	0	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Removal	2004	0	0	88	0	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0
19	Removal	2005	0	0	123	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
19	Removal	2006	0	0	204	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0
19	Removal	2007	0	0	169	0	0	0	0	0	0	0	0	0	0	0	4	0	2	0	0
19	Removal	2008	0	0	274	0	0	0	0	0	0	0	0	0	0	0	7	0	8	0	0
19	Cov Cont	2004	0	0	26	158	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0
19	Cov Cont	2005	0	0	12	275	0	0	0	0	0	0	0	8	0	0	0	0	1	0	0
19	Cov Cont	2006	0	0	18	418	0	0	0	0	0	0	0	7	0	0	0	0	1	0	0
19	Cov Cont	2007	0	0	26	496	0	0	0	0	0	0	0	9	0	0	0	0	5	0	0
19	Cov Cont	2008	0	0	84	502	0	0	0	0	0	0	0	9	0	0	0	0	5	0	0
20	Control	2004	0	0	53	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
20	Control	2005	4	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Control	2006	5	0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Control	2007	1	0	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Control	2008	3	0	89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2004	0	0	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2005	4	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Desmodium lineatum*	*Desmodium tenuifolium*	*Galactia erecta*	*Galactia volubilis*	*Lespedeza capitata*	*Lespedeza repens*	*Rhynchosia reniformis*	Unidentified Fabaceae seedlings	*Stylosanthes biflora*	*Strophostyles umbellata*	*Tephrosia florida*	*Tephrosia spicata*	*Tephrosia onobrychoides/hispidula*	Fabaceae sp	Fabaceae vine	Fabaceae	*Pinus palustris*	*Pinus taeda*	*Acer rubrum*
18	Control	2007	12	0	0	0	0	2	0	0	11	16	0	2	0	0	0	0	0	0	0
18	Control	2008	30	0	0	0	0	1	0	0	22	18	0	1	0	0	0	0	0	0	0
18	Cov Cont	2004	0	0	0	0	0	0	0	0	22	2	3	1	0	0	0	0	0	0	0
18	Cov Cont	2005	0	0	0	0	0	0	0	0	31	13	1	5	0	0	0	0	0	0	0
18	Cov Cont	2006	0	0	0	0	0	0	0	0	6	6	3	1	0	0	0	0	0	0	0
18	Cov Cont	2007	0	0	0	0	0	0	0	0	4	1	1	8	0	0	0	0	0	1	0
18	Cov Cont	2008	0	0	0	0	0	0	0	0	38	8	5	4	0	0	0	0	0	0	0
18	Removal	2004	8	0	0	0	0	0	0	0	106	0	1	10	0	0	0	0	0	0	0
18	Removal	2005	5	0	0	0	0	1	0	0	123	2	1	9	0	1	0	0	0	0	0
18	Removal	2006	7	0	0	0	0	1	0	0	25	1	0	4	0	0	0	0	0	0	0
18	Removal	2007	2	0	0	0	0	1	0	0	23	3	0	4	0	0	0	0	0	0	0
18	Removal	2008	6	0	0	0	0	0	0	0	28	4	1	7	0	0	0	0	0	0	0
18	Far Cont	2005	0	0	0	0	0	4	0	0	10	12	0	1	0	0	0	0	0	0	0
18	Far Cont	2006	0	0	0	0	0	3	0	0	16	6	0	2	0	0	0	0	0	0	0
18	Far Cont	2007	0	0	0	0	0	1	0	0	7	8	0	2	0	0	0	0	1	2	0
18	Far Cont	2008	0	0	0	0	0	7	0	0	16	18	0	2	0	0	0	0	0	0	0
19	Far Cont	2005	0	0	0	0	0	1	0	0	7	0	0	9	0	0	0	0	0	0	0
19	Far Cont	2006	0	0	0	0	0	1	0	0	4	0	0	3	0	0	0	0	0	0	0
19	Far Cont	2007	0	0	0	0	0	0	0	0	7	0	0	5	0	0	0	0	0	0	0
19	Far Cont	2008	0	0	0	0	0	0	0	0	7	1	0	6	0	0	0	0	0	0	0
19	Control	2004	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	12	0	0
19	Control	2005	0	0	0	0	0	3	0	0	138	0	0	0	0	0	0	0	2	0	0
19	Control	2006	0	0	0	0	0	2	0	0	5	0	0	0	0	0	0	0	2	0	0
19	Control	2007	0	0	0	0	0	1	0	0	14	0	0	0	0	0	0	0	0	0	0
19	Control	2008	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0
19	Removal	2004	1	0	3	1	0	3	0	0	12	0	0	0	0	0	0	0	13	0	0
19	Removal	2005	0	0	3	1	0	8	0	0	38	0	6	0	0	0	0	0	4	0	0
19	Removal	2006	0	0	1	0	0	3	0	0	3	0	4	0	0	0	0	0	4	0	0
19	Removal	2007	0	0	1	0	0	2	0	0	7	0	5	1	0	0	0	0	0	0	0
19	Removal	2008	0	0	0	0	0	1	0	0	7	0	1	1	0	0	0	0	0	0	0
19	Cov Cont	2004	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	7	0	0
19	Cov Cont	2005	0	0	0	0	0	1	0	0	17	0	0	0	0	0	0	0	2	0	0
19	Cov Cont	2006	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
19	Cov Cont	2007	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
19	Cov Cont	2008	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2	0	0
20	Control	2004	0	0	0	1	0	0	0	0	4	0	0	0	0	0	0	0	1	1	0
20	Control	2005	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
20	Control	2006	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	1	0
20	Control	2007	0	0	1	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0
20	Control	2008	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
20	Cov Cont	2004	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	5	1	0
20	Cov Cont	2005	0	0	0	1	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Aralia spinosa*	*Callicarpa americana*	*Campsis radicans*	*Diospyros virginiana*	*Gaylussacia dumosa*	*Ilex glabra*	*Ilex vomitoria*	*Ligustrum sinense*	*Liquidambar styraciflua*	*Lonicera japonica*	*Malus angustifolia*	*Morella cerifera*	*Nyssa sylvatica*	*Parthenocissus quinquefolia*	*Prunus serotina*	*Quercus falcata*	*Quercus nigra*	*Quercus virginiana*	*Rhus copallinum*
18	Control	2007	0	0	0	0	0	0	0	1	0	0	0	0	6	0	0	0	0	0	0
18	Control	2008	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0
18	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	3
18	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	3
18	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	2
18	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	1
18	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	7
18	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
18	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18	Far Cont	2007	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18	Far Cont	2008	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
19	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
19	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
19	Control	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Control	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Control	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Control	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Control	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Removal	2004	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
19	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
19	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
19	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
19	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
19	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
19	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
19	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
19	Cov Cont	2008	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	1
20	Control	2004	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
20	Control	2005	0	0	0	0	0	0	0	7	4	0	0	0	0	0	0	0	0	0	0
20	Control	2006	0	0	0	0	0	0	0	7	3	0	0	0	0	0	0	0	0	0	0
20	Control	2007	0	3	0	0	0	0	0	9	14	0	0	0	0	0	0	0	0	0	0
20	Control	2008	0	5	0	0	0	0	0	8	7	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2004	0	4	0	0	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0
20	Cov Cont	2005	0	5	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Rubus cuneifolius*	*Sassafras albidum*	*Triadica sebifera*	*Smilax bona-nox*	*Smilax glauca*	*Smilax rotundifolia*	*Toxicodendron radicans*	Unidentified *Vaccineum*	*Vaccinium darrowii*	*Vaccinium elliottii*	*Vaccinium arboreum*	*Vaccinium stamineum*
18	Control	2007	0	0	0	0	0	0	0	0	0	0	0	5
18	Control	2008	0	0	0	0	0	0	0	0	0	0	0	6
18	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	9	0
18	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	11	0
18	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	7	0
18	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	8	0
18	Cov Cont	2008	0	0	0	0	1	0	0	0	0	0	12	0
18	Removal	2004	0	0	1	0	0	0	0	0	0	0	0	0
18	Removal	2005	0	0	1	0	0	0	0	0	0	0	0	0
18	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
18	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
18	Removal	2008	0	0	0	0	1	0	0	0	0	0	0	0
18	Far Cont	2005	0	0	0	0	10	0	0	0	0	0	0	0
18	Far Cont	2006	0	0	0	0	10	0	0	0	0	0	0	0
18	Far Cont	2007	0	0	0	0	10	0	0	0	0	0	0	0
18	Far Cont	2008	0	0	0	0	12	0	0	0	0	0	0	0
19	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	1	0
19	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	2	0
19	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	2	0
19	Far Cont	2008	0	0	0	0	0	0	0	2	0	0	2	0
19	Control	2004	0	0	0	0	4	0	0	0	0	0	0	0
19	Control	2005	0	0	0	0	5	0	0	0	0	0	0	0
19	Control	2006	0	0	0	0	6	0	0	0	0	0	0	0
19	Control	2007	0	0	0	0	8	0	0	0	0	0	0	0
19	Control	2008	0	0	0	0	5	0	0	1	0	0	0	0
19	Removal	2004	0	0	0	0	5	0	0	0	0	0	0	0
19	Removal	2005	0	0	0	1	2	0	0	0	0	0	0	0
19	Removal	2006	0	0	0	1	2	0	0	0	0	0	1	0
19	Removal	2007	0	0	0	0	2	0	0	0	0	0	1	0
19	Removal	2008	0	0	0	0	4	0	0	0	0	0	2	0
19	Cov Cont	2004	0	0	0	0	1	0	0	0	0	0	0	0
19	Cov Cont	2005	0	0	0	0	6	0	0	0	0	0	0	0
19	Cov Cont	2006	0	0	0	0	6	0	0	0	0	0	0	0
19	Cov Cont	2007	0	0	0	0	4	0	0	0	0	0	0	0
19	Cov Cont	2008	0	0	0	0	6	0	0	0	0	0	0	0
20	Control	2004	0	1	0	0	0	0	1	0	0	0	0	0
20	Control	2005	0	0	0	0	0	0	1	0	0	0	0	0
20	Control	2006	0	0	0	0	0	0	1	0	0	0	0	0
20	Control	2007	0	0	0	0	0	0	3	0	0	0	0	0
20	Control	2008	1	0	0	0	0	0	3	0	0	0	0	0
20	Cov Cont	2004	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Dichanthelium aciculare*	*Dichanthelium acuminatum*	*Dichanthelium ensifolium*	*Dichanthelium laxiflorum*	Dichanthelium ovale	*Dichanthelium scoparium*	*Dichanthelium sphaerocarpon*	*Dichanthelium strigosum*	*Dichanthelium dichotomum*	*Panicum anceps*	*Panicum verrucosum*	*Panicum virgatum*	*Dichanthelium* seedlings	*Fimbristylis puberula*	*Rhynchospora glomerata*	*Rhynchospora rariflora*	*Scleria* sp	*Scleria ciliata*	*Scleria pauciflora*
20	Cov Cont	2006	0	0	2	0	15	0	7	3	0	24	8	0	0	0	14	0	0	0	4
20	Cov Cont	2007	0	0	4	0	26	0	4	1	0	10	633	0	0	0	1	0	0	0	0
20	Cov Cont	2008	0	0	5	0	22	0	7	1	0	4	0	0	0	0	7	0	0	0	0
20	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	9
20	Removal	2005	0	0	0	0	2	0	0	7	0	78	32	0	0	0	6	2	0	0	5
20	Removal	2006	0	0	0	0	12	0	0	2	0	21	16	0	0	0	11	53	0	0	0
20	Removal	2007	0	1	3	0	5	0	0	0	0	8	1071	0	0	0	3	5	0	0	1
20	Removal	2008	0	0	4	0	1	0	1	1	0	12	2	0	0	0	5	137	0	0	1
20	Far Cont	2005	0	0	0	0	2	0	0	0	0	0	853	0	0	0	2	0	0	0	0
20	Far Cont	2006	0	1	1	0	6	0	0	1	0	1	26	0	0	0	2	0	0	0	0
20	Far Cont	2007	0	0	3	0	9	0	0	0	0	0	272	0	0	0	1	0	0	0	0
20	Far Cont	2008	0	0	5	0	10	0	0	0	0	0	0	0	0	0	2	1	0	0	0

site	Treatment	Year	Cyperaceae sp	Cyperaceae (same within site)	*Acalypha gracilens*	*Ageratina altissima/aromatica*	*Aletris lutea*	*Ambrosia artemisiifolia*	*Symphyotrichum adnatum*	*Symphyotrichum concolor*	*Symphyotrichum dumosum*	*Eurybia hemispherica*	*Symphyotrichum patens*	*Symphyotrichum praealtum*	*Ionactis linariifolius*	*Boltonia diffusa*	*Chrysopsis mariana*	*Cirsium horridulum*	*Conoclinium coelestinum*	*Diodia teres*	Diodia virginiana
20	Cov Cont	2006	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2007	0	2	2	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0
20	Cov Cont	2008	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
20	Removal	2004	0	0	0	0	0	0	0	0	7	0	0	0	0	2	0	0	0	0	0
20	Removal	2005	2	0	5	0	0	0	0	0	10	0	0	0	0	3	0	0	0	0	0
20	Removal	2006	0	0	0	0	0	0	0	0	13	0	0	2	0	2	0	0	0	0	0
20	Removal	2007	0	0	0	0	0	0	0	0	32	0	0	2	0	0	0	0	0	0	1
20	Removal	2008	0	0	0	0	0	0	0	0	26	0	0	6	0	2	0	0	0	0	1
20	Far Cont	2005	0	0	46	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	7
20	Far Cont	2006	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	13
20	Far Cont	2007	0	0	27	0	0	0	0	0	16	0	0	2	0	0	0	0	0	0	6
20	Far Cont	2008	0	0	0	0	0	0	0	0	15	0	0	1	0	0	0	0	0	0	0

site	Treatment	Year	*Drosera brevifolia*	*Elephantopus tomentosus*	*Eryngium integrifolium*	*Eryngium yuccifolium*	*Eupatorium album*	*Eupatorium capillifolium*	*Euphorbia corollata*	*Eupatorium perfoliatum*	*Eupatorium rotundifolium*	*Eupatorium semiserratum*	*Gelsemium sempervirens*	*Pseudognaphalium obtusifolium*	*Gratiola pilosa*	*Helianthus angustifolius*	*Helenium flexuosum*	*Houstonia procumbens*	*Helianthus radula*	*Hibiscus aculeatus*	*Hieracium gronovii*
20	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0
20	Cov Cont	2007	0	0	0	0	0	0	0	0	0	2	0	0	0	11	0	0	0	0	0
20	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
20	Removal	2004	0	0	0	0	0	0	0	0	0	2	0	0	0	14	2	0	0	0	0
20	Removal	2005	0	0	0	0	0	0	0	0	1	6	0	0	0	59	2	0	0	0	0
20	Removal	2006	0	0	0	0	0	0	0	0	0	2	0	0	0	27	5	0	0	0	0
20	Removal	2007	0	0	0	0	0	1	0	0	3	2	0	0	0	11	5	0	0	0	0
20	Removal	2008	0	0	0	0	0	0	0	0	3	1	0	0	0	12	6	0	0	0	0
20	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0
20	Far Cont	2006	0	0	0	0	0	0	0	0	0	2	0	0	0	15	0	0	0	0	0
20	Far Cont	2007	0	0	0	0	0	1	0	0	0	1	0	0	0	13	0	0	0	0	0
20	Far Cont	2008	0	0	0	0	0	0	0	0	0	2	0	0	0	18	0	0	0	0	0

site	Treatment	Year	*Hyptis alata*	*Hypericum crux-andreae*	*Hypericum hypericoides*	*Hypoxis juncea*	*Hypericum setosum*	*Lactuca graminifolia*	*Lechea minor*	*Liatris* sp	*Linum medium*	*Lobelia brevifolia*	*Lobelia puberula*	*Ludwigia hirtella*	*Mecardonia acuminata*	*Mitchella repens*	*Mitreola sessilifolia*	Unknown Forb Species A	*Oxalis corniculata*	*Phyllanthus caroliniensis*	*Phlox divaricata*
20	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	10	0
20	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	7	64	0
20	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	9	35	0
20	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
20	Removal	2005	0	0	0	1	0	0	0	0	0	0	2	0	0	0	4	0	3	25	0
20	Removal	2006	0	2	0	0	2	0	0	0	0	0	4	0	0	0	8	0	0	52	0
20	Removal	2007	0	2	0	0	8	0	0	0	0	0	0	0	0	0	10	0	2	92	0
20	Removal	2008	0	3	0	0	9	0	0	0	0	0	3	1	0	0	13	0	8	160	0
20	Far Cont	2005	3	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	3	40	0
20	Far Cont	2006	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	4	38	0
20	Far Cont	2007	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	0	8	57	0
20	Far Cont	2008	0	0	0	0	0	0	0	0	0	0	20	0	0	0	4	0	11	58	0

site	Treatment	Year	*Physalis virginiana*	*Pityopsis graminifolia*	*Pluchea foetida*	*Polygala nana*	*Pteridium aquilinum*	*Pycnanthemum albescens*	*Rhexia alifanus*	*Rhexia mariana*	*Ruellia caroliniensis /pedunculata*	*Rudbeckia hirta*	*Rubus trivialis*	*Scutellaria integrifolia*	*Solanum carolinense*	*Solidago odora*	*Solidago rugosa*	*Trachelospermum difforme*	*Trichostema* sp	*Tragia smallii*	Unknown Forb Species B
20	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	2	2	0	0	30	0	0	0	0
20	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	6	1	0	0	26	0	0	0	0
20	Cov Cont	2008	0	0	0	0	0	0	0	0	0	1	5	3	0	0	54	0	0	0	0
20	Removal	2004	0	0	0	0	0	0	0	0	0	0	2	0	0	0	7	0	2	0	0
20	Removal	2005	0	0	0	0	0	0	0	0	2	0	2	1	0	0	31	0	0	0	0
20	Removal	2006	0	0	0	0	0	0	0	0	6	0	1	0	0	1	23	0	0	0	0
20	Removal	2007	0	0	0	0	0	0	0	0	5	0	4	5	0	3	25	0	0	0	0
20	Removal	2008	0	0	0	0	0	0	0	1	2	0	5	6	0	2	65	0	0	0	0
20	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	2	5	0	2	11	0	0	0	0
20	Far Cont	2006	0	0	0	0	0	0	0	0	1	0	1	11	0	2	11	0	0	0	0
20	Far Cont	2007	0	0	0	0	0	0	0	0	1	0	1	4	0	2	22	0	0	0	0
20	Far Cont	2008	0	0	0	0	0	0	0	0	1	0	1	12	0	0	40	0	0	0	0

site	Treatment	Year	Unknown Forb Species C	Unknown Forb Species D	Unknown Forb Species E	Unknown Forb Species F	Unknown Forb Species G	Unknown Forb Species H	Unidentified Forbs	Unknown Forb Species I	Unknown Forb Species J	Unknown Forb Species K	Unidentified basal rosette	*Viola ×primulifolia*	*Viola septemloba*	*Andropogon gyrans*	*Aristida purpurascens*	*Chasmanthium laxum*	*Ctenium aromaticum*	*Agrostis* sp	*Gymnopogon brevifolius*
20	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	1	0	0	101	0	0	0	0
20	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0	0	0	0
20	Cov Cont	2008	1	0	0	0	0	0	0	0	0	0	0	0	0	0	132	0	0	0	0
20	Removal	2004	0	0	0	0	0	0	12	0	0	0	0	56	0	0	0	0	0	0	0
20	Removal	2005	1	0	0	0	0	0	1	0	0	0	0	7	0	0	8	0	0	0	0
20	Removal	2006	1	0	0	0	0	0	0	0	0	0	0	1	0	0	15	0	0	0	0
20	Removal	2007	1	0	0	0	0	0	0	0	0	0	0	2	0	0	9	0	0	0	0
20	Removal	2008	5	0	0	0	0	0	0	0	0	0	0	0	0	8	50	0	0	0	0
20	Far Cont	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	0	0	0
20	Far Cont	2006	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	84	0	0	0
20	Far Cont	2007	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	42	0	0	0
20	Far Cont	2008	10	0	0	0	0	0	0	0	4	0	0	2	0	0	12	45	0	0	0

site	Treatment	Year	*Paspalum floridanum*	*Paspalum notatum*	*Schizachyrium scoparium*	*Schizachyrium tenerum*	Unknown Grass A	Unknown Grass B	Unknown Grass C	Unknown Grass D	Unknown Grass E	Unknown Grass F	Unidentified Poaceae	Poaceae (same within site)	Unknown Grass G	*Baptisia bracteata*	*Centrosema virginianum*	*Chamaecrista nictitans*	*Clitoria mariana*	*Crotalaria rotundifolia*	*Desmodium ciliare*
20	Cov Cont	2006	5	0	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2007	0	0	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2008	0	0	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2004	0	0	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2005	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2006	0	0	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2007	0	0	73	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
20	Removal	2008	0	0	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Far Cont	2005	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Far Cont	2006	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Far Cont	2007	0	0	13	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Far Cont	2008	0	0	36	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Desmodium lineatum*	*Desmodium tenuifolium*	*Galactia erecta*	*Galactia volubilis*	*Lespedeza capitata*	*Lespedeza repens*	*Rhynchosia reniformis*	Unidentified Fabaceae seedlings	*Stylosanthes biflora*	*Strophostyles umbellata*	*Tephrosia florida*	*Tephrosia spicata*	*Tephrosia onobrychoides/hispidula*	Fabaceae sp	Fabaceae vine	Fabaceae	*Pinus palustris*	*Pinus taeda*	*Acer rubrum*
20	Cov Cont	2006	0	0	0	0	0	1	0	0	14	0	0	0	0	0	0	0	1	0	0
20	Cov Cont	2007	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2008	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0
20	Removal	2004	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0
20	Removal	2005	0	0	0	0	0	0	0	0	55	0	0	0	0	0	0	0	0	0	0
20	Removal	2006	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0
20	Removal	2007	0	0	0	0	0	1	0	0	9	0	0	1	0	0	0	0	0	0	0
20	Removal	2008	0	0	0	0	0	0	0	0	16	0	0	0	0	1	0	0	0	0	0
20	Far Cont	2005	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
20	Far Cont	2006	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
20	Far Cont	2007	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
20	Far Cont	2008	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0

site	Treatment	Year	*Aralia spinosa*	*Callicarpa americana*	*Campsis radicans*	*Diospyros virginiana*	*Gaylussacia dumosa*	*Ilex glabra*	*Ilex vomitoria*	*Ligustrum sinense*	*Liquidambar styraciflua*	*Lonicera japonica*	*Malus angustifolia*	*Morella cerifera*	*Nyssa sylvatica*	*Parthenocissus quinquefolia*	*Prunus serotina*	*Quercus falcata*	*Quercus nigra*	*Quercus virginiana*	*Rhus copallinum*
20	Cov Cont	2006	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2007	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2008	0	7	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
20	Removal	2004	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2005	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2006	0	2	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2007	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2008	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
20	Far Cont	2005	0	0	0	0	0	0	1	4	2	0	0	0	0	0	0	0	0	2	1
20	Far Cont	2006	0	1	0	0	0	0	1	5	3	0	0	0	0	0	0	0	0	3	1
20	Far Cont	2007	0	1	0	0	0	0	4	4	2	0	0	0	0	0	0	0	0	2	0
20	Far Cont	2008	0	0	0	0	0	0	3	2	2	0	0	0	0	0	0	0	0	2	0

site	Treatment	Year	*Rubus cuneifolius*	*Sassafras albidum*	*Triadica sebifera*	*Smilax bona-nox*	*Smilax glauca*	*Smilax rotundifolia*	*Toxicodendron radicans*	Unidentified *Vaccineum*	*Vaccinium darrowii*	*Vaccinium elliottii*	*Vaccinium arboreum*	*Vaccinium stamineum*
20	Cov Cont	2006	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2007	0	0	0	0	0	0	0	0	0	0	0	0
20	Cov Cont	2008	0	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2004	0	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2005	0	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2006	0	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2007	0	0	0	0	0	0	0	0	0	0	0	0
20	Removal	2008	0	0	0	0	0	0	0	0	0	0	0	0
20	Far Cont	2005	0	0	0	1	0	0	0	0	0	0	0	2
20	Far Cont	2006	0	0	0	1	0	0	0	0	0	0	0	2
20	Far Cont	2007	0	1	0	1	0	0	0	0	0	0	0	1
20	Far Cont	2008	0	1	0	0	0	0	0	0	0	0	0	2

APPENDIX D

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Associate Dean of Academic and Research Programs
Professor of Biology
K-State Olathe
18001 W. 106th St., Suite 130
Olathe, KS 66061
http://kstateoic.ksu.edu

Office: 913-541-1220
Fax: 913-541-1488
Cell: 229-563-3099
jbpascar@k-state.edu

VITA

Ellen Ruth Leichty was born in Elkhart, Indiana, in January 1976, to Marilyn Kay and Norman Hoyt Leichty. Her parents moved to a farm in Henry County, Iowa, in March of 1980. Ellen grew up there and attended Iowa Mennonite High School. Her interest in ecology and especially birds and plants may have been facilitated by living in an agrarian rural setting. Ellen had chickens beginning at age four and continued this through high school. She raised strawberries and produce to sell to grocery stores, and at the local farmers market. Her parents owned approximately 120 acres, which was a combination of woods and fields. Ellen spent a lot of time searching for bird nests and discovering the different bird species and trees and other plants that were present on the farm. Her parents were focused on sustainable farming methods such as crop rotation and avoidance of pesticides and synthetic fertilizers. They currently have a dairy operation and sell organic milk. Ellen attended Goshen College in Goshen, Indiana, and graduated with a Bachelor of Arts degree in biology in 1996. In fall of 1999 she entered the master's program in zoology at North Dakota State University in Fargo. Her thesis was on warbler behavior and was supervised by Dr. Jim Grier. In fall of 2002, she entered the doctoral program in biological sciences at Louisiana State University and developed an interest in pine savannas. Her dissertation was directed by Dr. Bill Platt